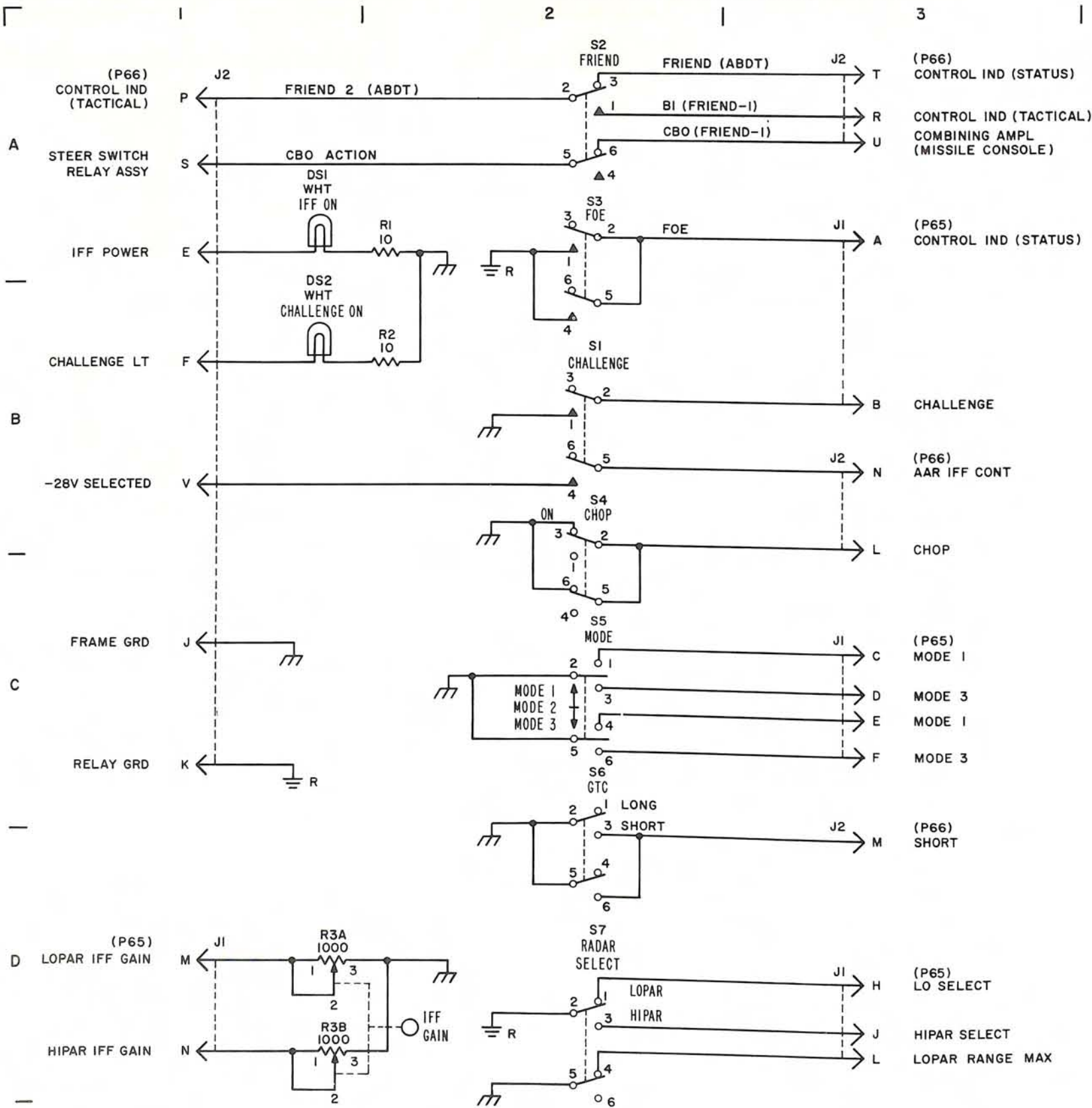


(U) LOPAR Control-Indicator 9993021—Apparatus List

| Ref desig | Value | Mfr's rating | | | Type, part, or drawing no. | Remarks |
|-----------|---------|--------------|-------|-------|----------------------------|---------|
| | | Tol \pm % | Watts | Volts | | |
| B1 | 0.01 | 10 | | 300 | 7674819 | |
| C1 | | | | | CM35B103JN3 | |
| CR1 | | | | | 7605693 | |
| CR2 | | | | | 8519051 | |
| DS1 | | | | | MS25231-1819 | |
| DS2 | | | | | 7605718 | |
| DS3 | | | | | 8328095 | |
| DS4 | | | | | MS25237-327 | |
| J1 | | | | | 9976306-2 | |
| J2 | | | | | 9976306-1 | |
| K1,K2 | 0.1 meg | 10 | 2 | | 9011925 | |
| M1 | | | | | 8174005 | |
| R1 | | | | | 9000886 | |
| R2 | | | | | 8205674 | |
| R3 | | | | | MS35043-109 | |
| R4 | | | | | MS35043-33 | |
| R5 | | | | | MS35043-120 | |
| R6 | | | | | 9144321 | |
| R7 | | | | | MS35044-88 | |
| R8 | | | | | MS35043-130 | |
| S1 | 24,000 | 5 | 1/2 | | MS35059-27 | |
| S2 | | | | | 9144148 | |
| S3 | | | | | 8005247 | |
| S4 | | | | | 9001465 | |
| S5 | | | | | 9001495 | |
| S6 | | | | | 8512470 | |
| S7 | | | | | 9000774 | |
| S8 | | | | | 9011495 | |
| S9 | | | | | 9011494 | |
| S10 | | | | | 9988814 | |

CONFIDENTIAL - Modified Handling Authorized



- NOTES:
1. ALL VALUES ARE EXPRESSED IN OHMS UNLESS OTHERWISE INDICATED
 2. UNUSED FACILITIES NOT SHOWN IN BODY OF SCHEMATIC ARE AS FOLLOWS:
J1-K,P,R,S,T,U,V
J2-A,B,C,D,H

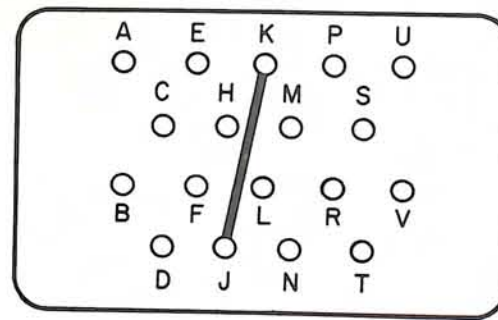
ORD G59836

Figure 84 (U). IFF control-indicator 9156348—schematic diagram (U).

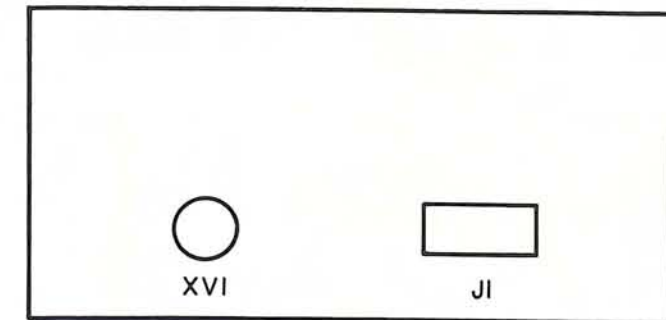
CONFIDENTIAL

MEASUREMENT NOTES

1. General
 - a. Measurements are made with all variable resistors adjusted for normal operation and all tubes in sockets.
 - b. Notation 3 to 4 in the Pin column indicates that measurement is made between pins 3 and 4.
 - c. All values given are typical.
2. Voltage
 - a. Measurements are made with system energized through low voltage condition.
 - b. Measurements are made with electronic multimeter TS-505/U using the scale that permits reading nearest full scale.
 - c. Voltages are +dc measured to ground, unless otherwise indicated.
3. Resistance
 - a. Measurements are made with multimeter TS-352/U using the scale that permits reading nearest midscale.
 - b. Measurements are made with all external cables disconnected and connector J1 strapped as indicated.
 - c. Resistances are measured to ground unless otherwise indicated.



PIN STRAPPING ARRANGEMENT FOR J1



BOTTOM VIEW OF CHASSIS

[illegible]

Figure 85A (U). Alarm control 9156414—voltage and resistance chart. (U).

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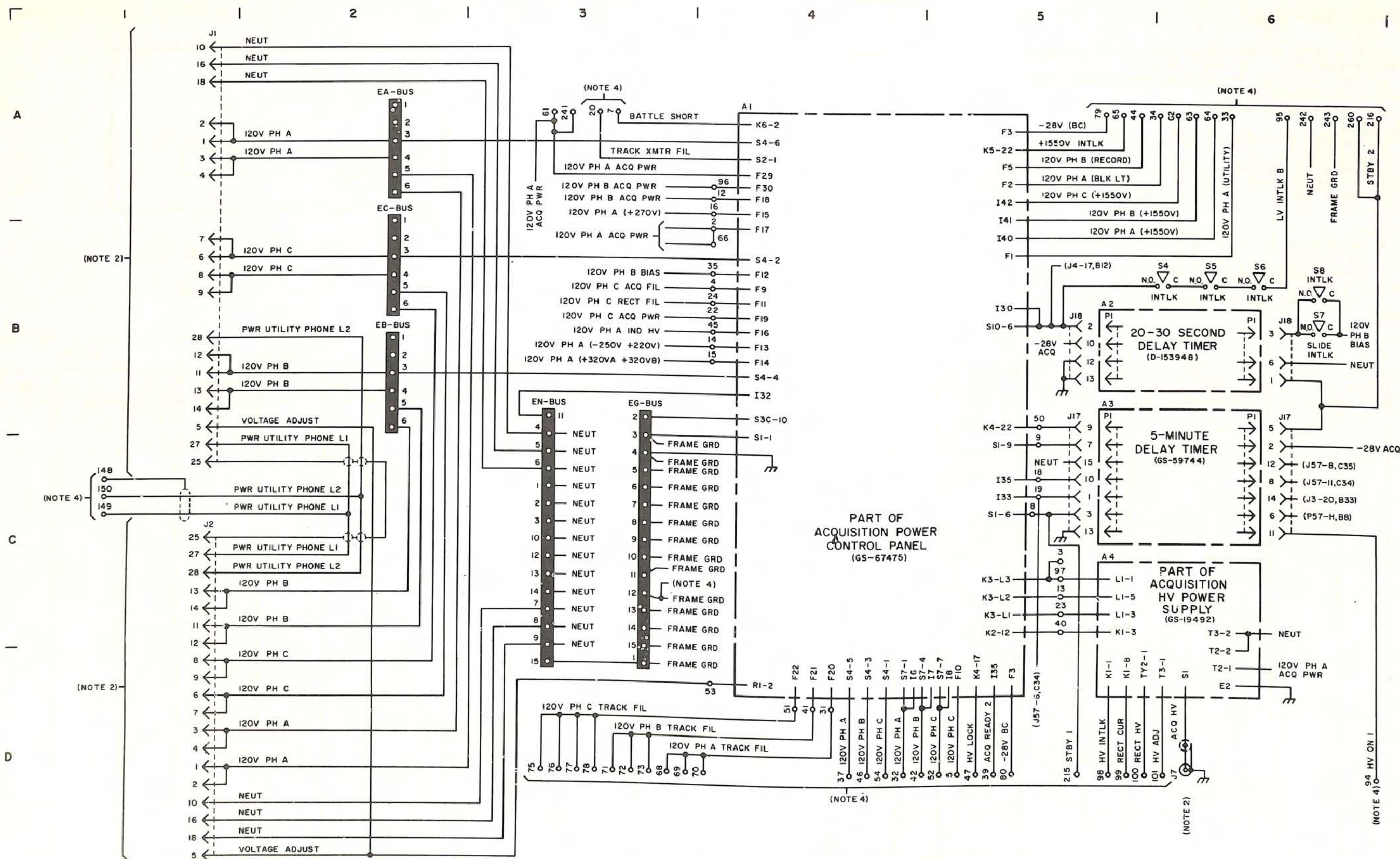
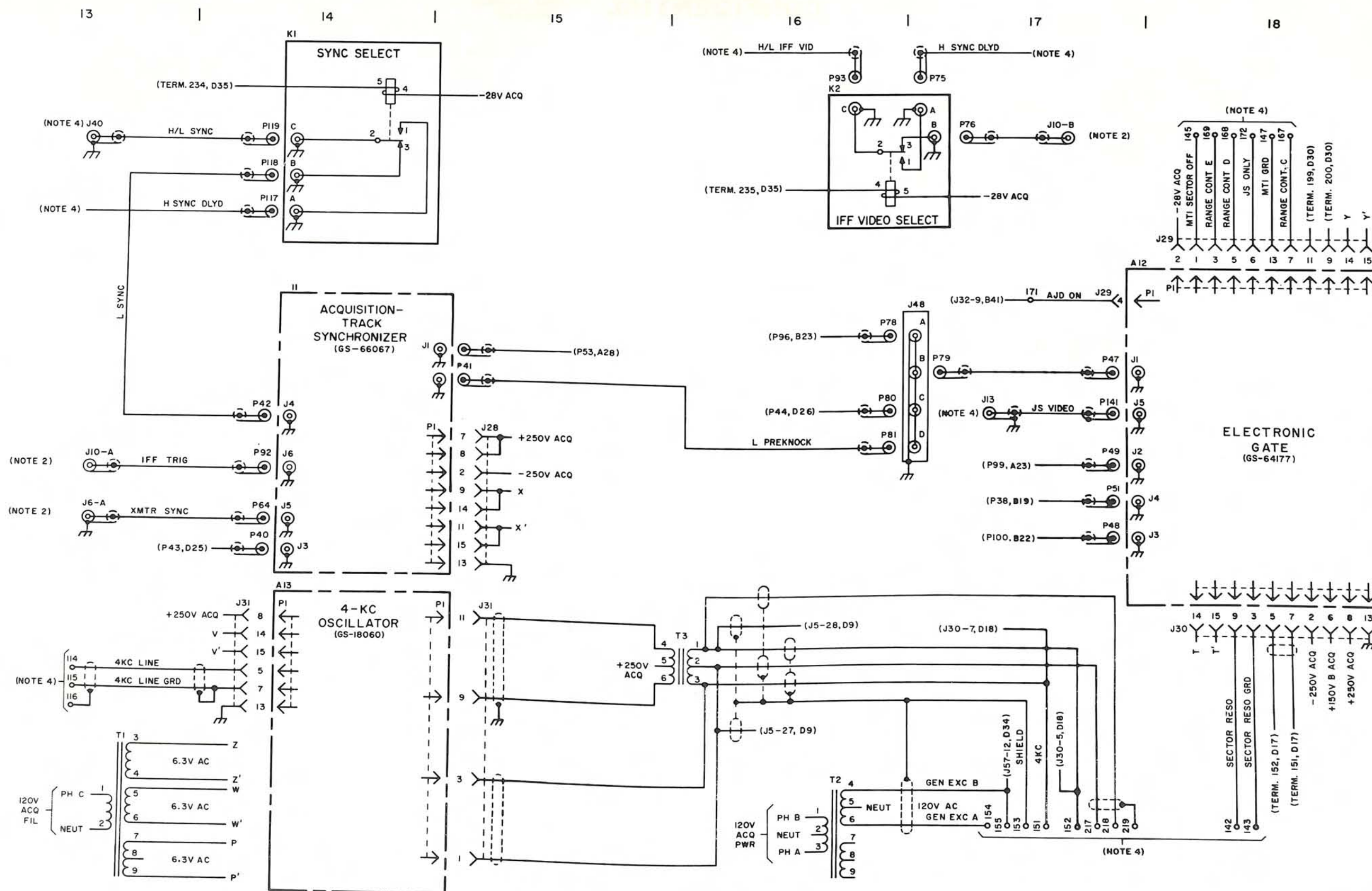


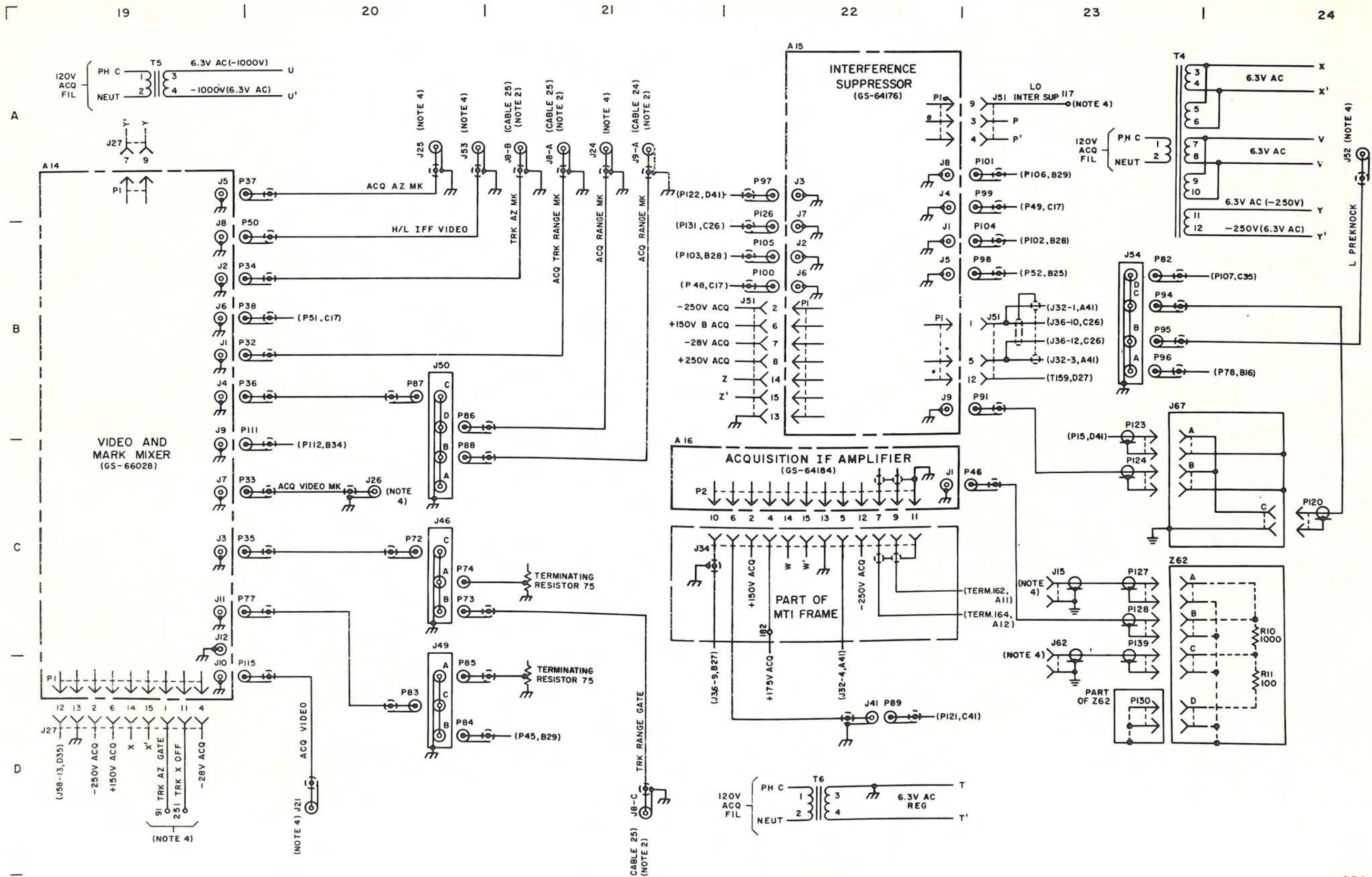
Figure 86 (U). Director station group 9995968—schematic diagram (sheet 1 of 8) (U).

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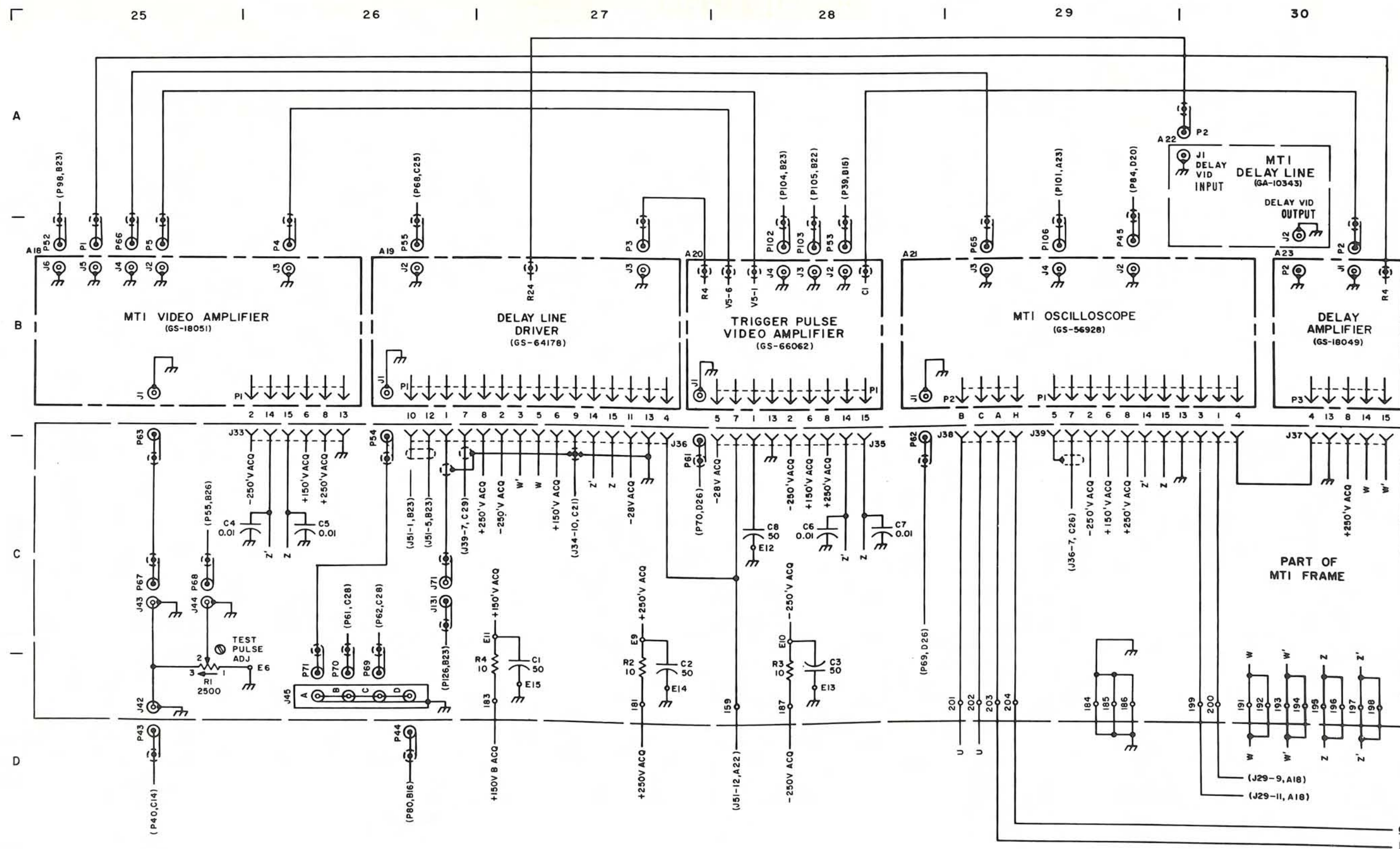


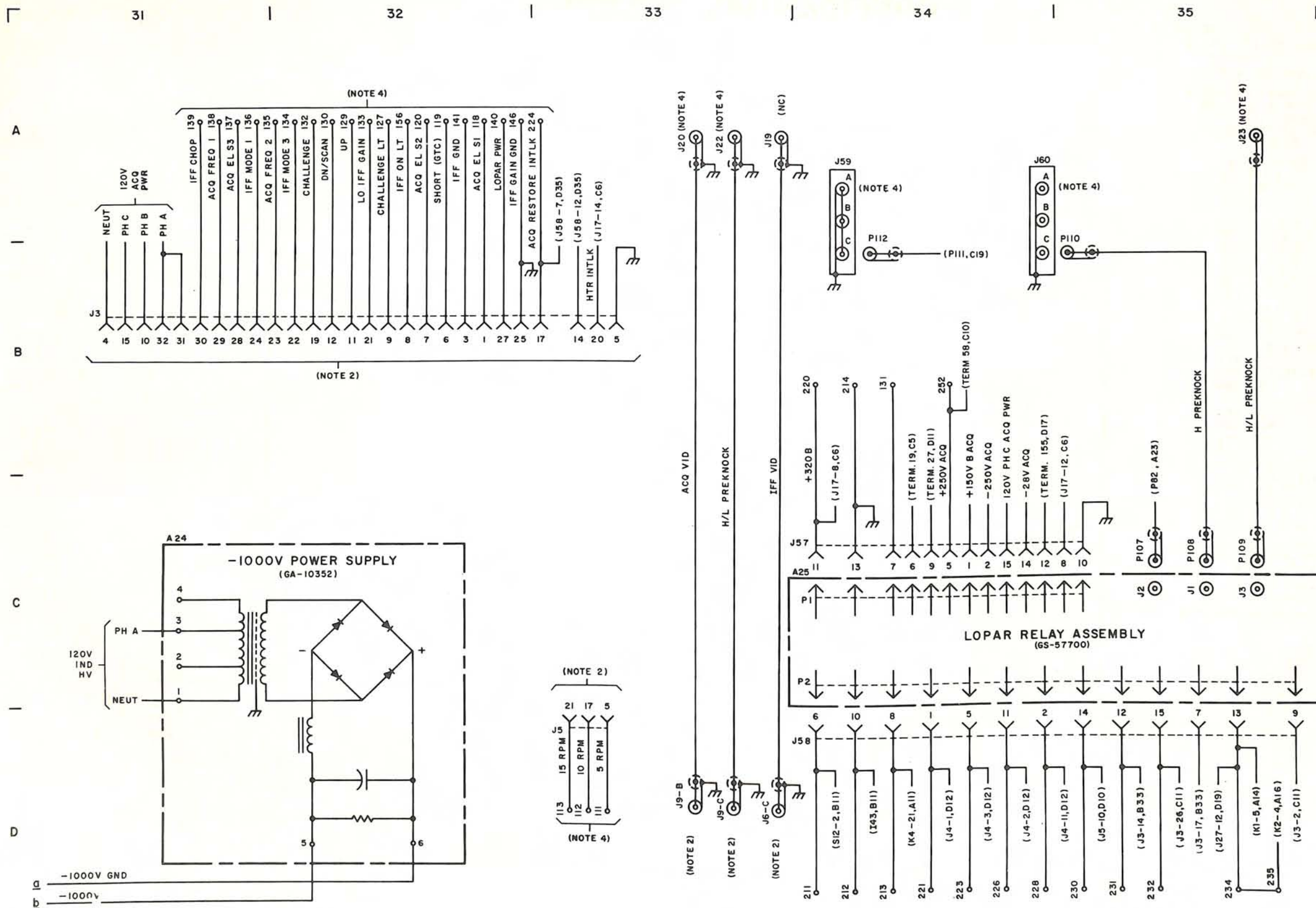
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■ Figure 86 (U). Continued (sheet 4 of 8).





■ Figure 86 (U). Continued (sheet 6 of 8).

37

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NOTES:

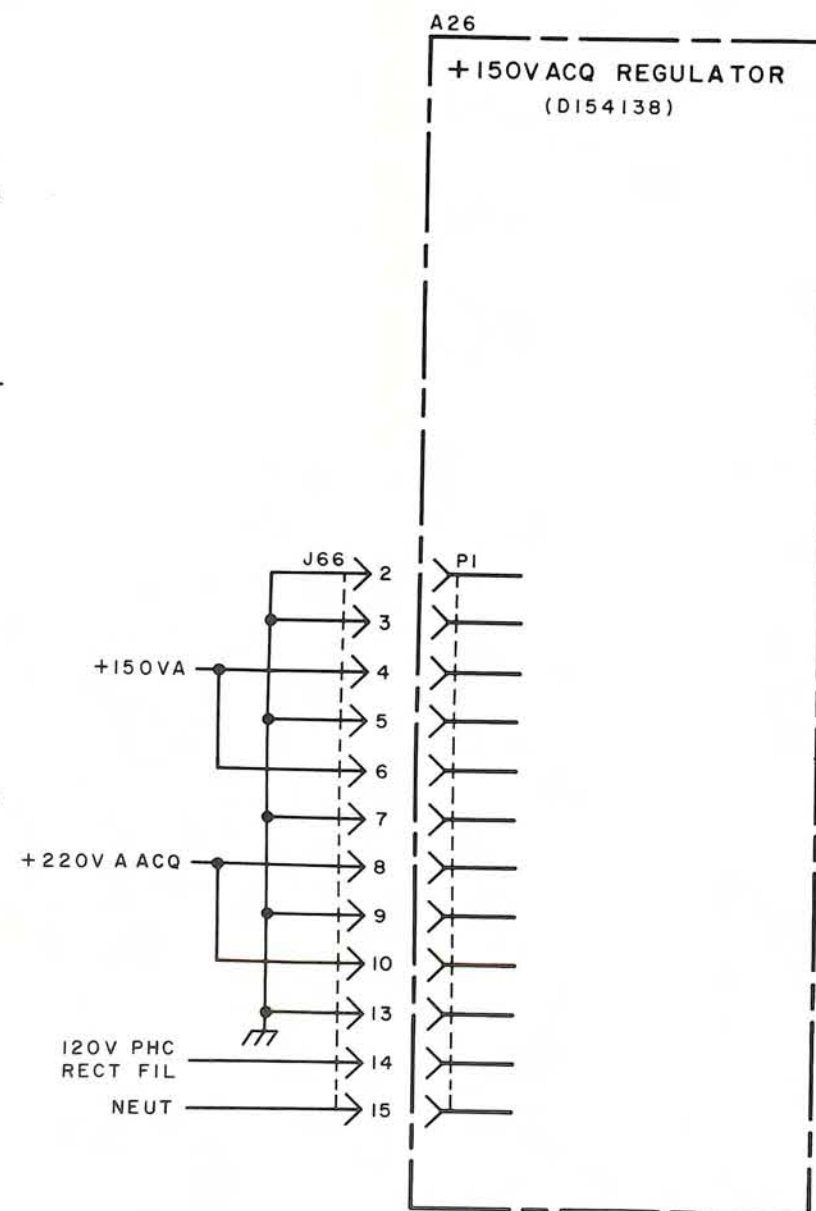
1. ALL VALUES ARE EXPRESSED IN OHMS OR MICRO-FARADS UNLESS OTHERWISE INDICATED
2. REFER TO TM9-1430-254-20/2
3. UNUSED FACILITIES NOT SHOWN IN BODY OF SCHEMATIC ARE AS FOLLOWS:
 - J1-15,17,19,20,21,22,23,24,26
 - J2-15,17,19,20,21,22,23,24,26
 - J3-16,18,37
 - J4-18
 - J5-22,24,26
 - J11-4,7,9,11
 - J12-1,5,7,9,11,12
 - J14
 - J17-4
 - J18-4,5,7,8,9,11,14,15
 - J27-3,5,8,10
 - J28-1,5,6,10,12
 - J29-8,10,12
 - J30-1,4,10,11,12
 - J31-2,4,6,10,12
 - J32-8
 - J33-1,3,4,5,7,9,10,11,12
 - J34-1,3,5,7,8,9,11,12
 - J35-3,4,9,10,11,12
 - J37-1,2,3,5,6,9,10
 - J38-D,E,F
 - J39-9,10,11,12
 - J51-10,11
 - J52
 - J55-16
 - J57-3,4
 - J58-3,4
 - J66-1,11,12
 - J70-6,11
 - P56-B,J,K,L,M,T,U
 - P57-E,F,N
 - P58-A,B,D,F,H,K,L,M,P,R,U,V
 - P59-E,F,N
 - P60-B,C,D,H,J,K,L,P,R,U,V
4. REFER TO SCHEMATIC OF TRAILER MOUNTED DIRECTOR STATION (GS-67471)9993057.
5. RESISTORS ASSOCIATED WITH NEON INDICATORS ARE 0.1 MEG AND ARE INTEGRAL PARTS OF LAMP SOCKETS A8328095
6. FUSES DESIGNATED "S" MUST BE OF SLO-BLO TYPE

A

B

C

D



707-212 O-63-13

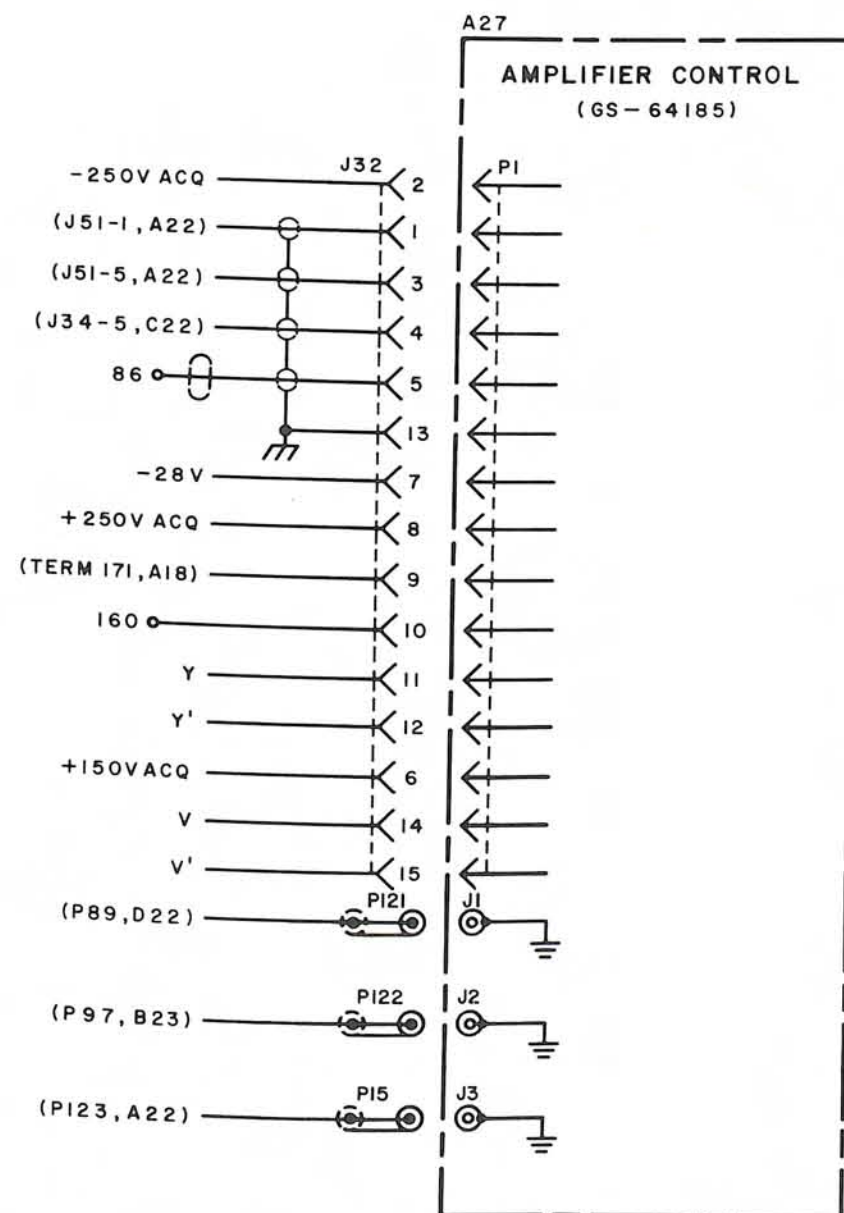
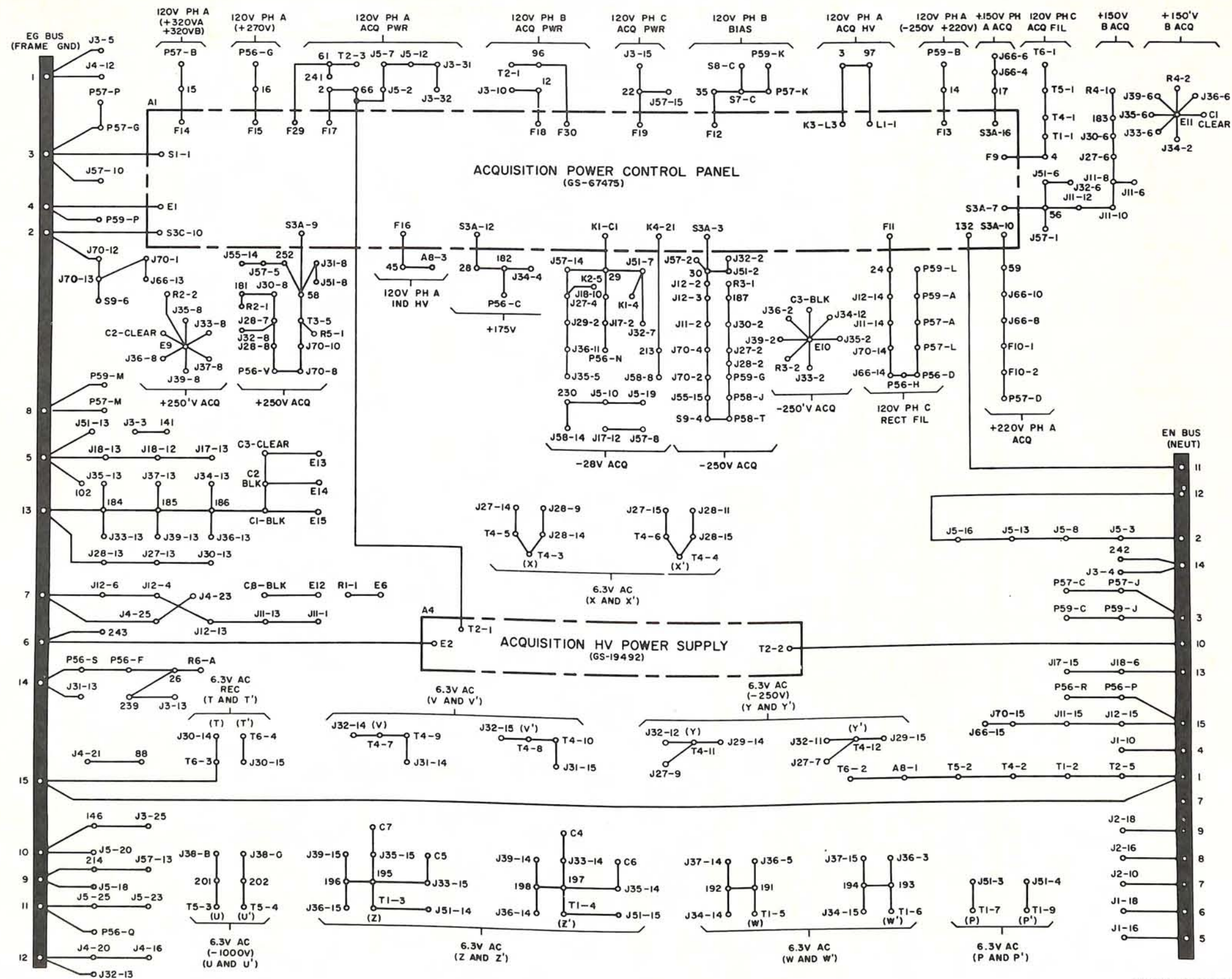


Figure 86 (U). Continued (sheet 7 of 8).

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ORD G 252225



ORD G252226 ■

■ *Figure 86 (U). Continued (sheet 8 of 8).*

CONFIDENTIAL

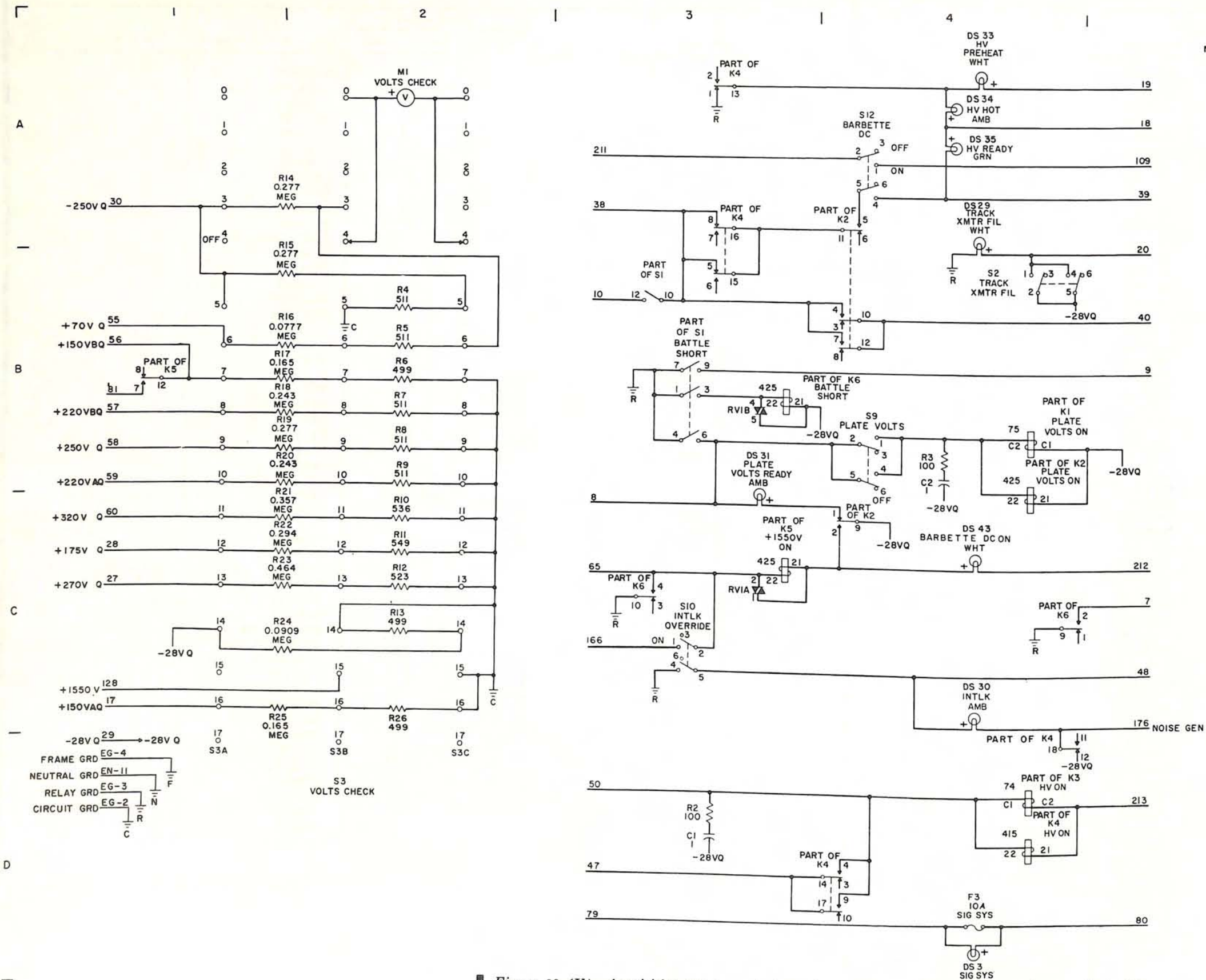
(U) INDEX OF TERMINALS—DIRECTOR STATION GROUP

| TERMINAL | LOCATION | TERMINAL | LOCATION | TERMINAL | LOCATION | TERMINAL | LOCATION | TERMINAL | LOCATION | TERMINAL | LOCATION |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1 | C10 | 55 | A10 | 109 | C11 | 163 | C22 | 217 | D17 | 1181 | NC |
| 2 | B4 | 56 | B10 | 110 | C11 | 164 | A12 | 218 | D17 | 1182 | NC |
| 3 | C5 | 57 | A10 | 111 | D33 | 165 | NC | 219 | D17 | 1183 | NC |
| 4 | B4 | 58 | C10 | 112 | D33 | 166 | B12 | 220 | B34 | 1184 | NC |
| 5 | D5 | 59 | B10 | 113 | D33 | 167 | A18 | 221 | D34 | | |
| 6 | NC | 60 | B10 | 114 | C13 | 168 | A18 | 222 | NC | | |
| 7 | A3 | 61 | A3 | 115 | D13 | 169 | A18 | 223 | D34 | | |
| 8 | C5 | 62 | A6 | 116 | D13 | 170 | NC | 324 | A33 | | |
| 9 | C5 | 63 | A6 | 117 | A23 | 171 | B17 | 225 | NC | | |
| 10 | C11 | 64 | A6 | 118 | A32 | 172 | A18 | 226 | D34 | | |
| 11 | C10 | 65 | A5 | 119 | A32 | 173 | A12 | 227 | NC | | |
| 12 | A4 | 66 | B4 | 120 | A32 | 174 | NC | 228 | D34 | | |
| 13 | C5 | 67 | A12 | 121 | D12 | 175 | A12 | 229 | NC | | |
| 14 | B4 | 68 | D3 | 122 | D11 | 176 | B12 | 230 | D35 | | |
| 15 | B4 | 69 | D3 | 123 | D11 | 177 | A12 | 231 | D35 | | |
| 16 | A4 | 70 | D4 | 124 | D11 | 178 | C11 | 232 | D35 | | |
| 17 | B10 | 71 | D3 | 125 | D11 | 179 | C11 | 233 | NC | | |
| 18 | C5 | 72 | D3 | 126 | NC | 180 | C11 | 234 | D35 | | |
| 19 | C5 | 73 | D3 | 127 | A32 | 181 | D27 | 235 | D35 | | |
| 20 | A3 | 74 | NC | 128 | B12 | 182 | C22 | 236 | NC | | |
| 21 | C10 | 75 | D3 | 129 | A32 | 183 | D27 | 237 | NC | | |
| 22 | B4 | 76 | D3 | 130 | A32 | 184 | D29 | 238 | D11 | | |
| 23 | C5 | 77 | D3 | 131 | B34 | 185 | D29 | 239 | D11 | | |
| 24 | B4 | 78 | D3 | 132 | A32 | 186 | D29 | 240 | D11 | | |
| 25 | D11 | 79 | A5 | 133 | A32 | 187 | D28 | 241 | A3 | | |
| 26 | D11 | 80 | D5 | 134 | A32 | 188 | NC | 242 | A6 | | |
| 27 | D11 | 81 | B12 | 135 | A32 | 189 | NC | 243 | A6 | | |
| 28 | B10 | 82 | NC | 136 | A31 | 190 | NC | 244 | NC | | |
| 29 | B10 | 83 | NC | 137 | A31 | 191 | D30 | 245 | NC | | |
| 30 | A10 | 84 | NC | 138 | A31 | 192 | D30 | 246 | NC | | |
| 31 | D4 | 85 | NC | 139 | A31 | 193 | D30 | 247 | NC | | |
| 32 | D4 | 86 | NC | 140 | A32 | 194 | D30 | 248 | NC | | |
| 33 | A6 | 87 | A11 | 141 | A32 | 195 | D30 | 249 | NC | | |
| 34 | A6 | 88 | A12 | 142 | D18 | 196 | D30 | 250 | NC | | |
| 35 | B4 | 89 | A11 | 143 | D18 | 197 | D30 | 251 | D19 | | |
| 36 | C10 | 90 | A12 | 144 | NC | 198 | D30 | 252 | B34 | | |
| 37 | D4 | 91 | D19 | 145 | A18 | 199 | D30 | 253 | NC | | |
| 38 | C11 | 92 | NC | 146 | A32 | 200 | D30 | 254 | NC | | |
| 39 | D5 | 93 | NC | 147 | A18 | 201 | D29 | 255 | NC | | |
| 40 | C5 | 94 | D6 | 148 | C1 | 202 | D29 | 256 | NC | | |
| 41 | D4 | 95 | A6 | 149 | C1 | 203 | D29 | 257 | NC | | |
| 42 | D4 | 96 | A4 | 150 | C1 | 204 | D29 | 258 | NC | | |
| 43 | A12 | 97 | C5 | 151 | D17 | 205 | NC | 259 | NC | | |
| 44 | A5 | 98 | D5 | 152 | D17 | 206 | NC | 260 | A6 | | |
| 45 | B4 | 99 | D5 | 153 | D17 | 207 | NC | 261 | C12 | | |
| 46 | D4 | 100 | D5 | 154 | D17 | 208 | NC | 262 | C12 | | |
| 47 | D5 | 101 | D6 | 155 | D17 | 209 | NC | 263 | C12 | | |
| 48 | A12 | 102 | A11 | 156 | A32 | 210 | NC | 264 | C12 | | |
| 49 | NC | 103 | A12 | 157 | NC | 211 | D34 | 265 | C12 | | |
| 50 | B5 | 104 | A12 | 158 | NC | 212 | D34 | 266 | C12 | | |
| 51 | D4 | 105 | NC | 159 | D28 | 213 | D34 | 267 | NC | | |
| 52 | D5 | 106 | A11 | 160 | NC | 214 | B34 | 268 | NC | | |
| 53 | D4 | 107 | A11 | 161 | A12 | 215 | D5 | 269 | NC | | |
| 54 | D4 | 108 | A11 | 162 | C22 | 216 | A6 | 270 | NC | | |

| Ref design | Value | Mfr's rating | | | Type, part, or drawing no. | Remarks |
|--------------|-------|--------------|-------|-------|----------------------------|----------|
| | | Tol ±% | Watts | Volts | | |
| A1 | | | | | 9995971 | GS-67475 |
| A2 | | | | | 7620519 | D-153948 |
| A3 | | | | | 9986425 | GS-59744 |
| A4 | | | | | 9139109 | GS-57430 |
| A5 | | | | | 9140697 | GS-17747 |
| A6 | | | | | 7620552 | D-154138 |
| A7 | | | | | 9140697 | GS-17747 |
| A8, A9 | | | | | 9137641 | GS-57290 |
| A10 | | | | | 9986425 | GS-18046 |
| A11 | | | | | 9989392 | GS-66067 |
| A12 | | | | | 9990560 | GS-64177 |
| A13 | | | | | 8512062 | GS-18060 |
| A14 | | | | | 9989191 | GS-66028 |
| A15 | | | | | 9990600 | GS-64176 |
| A16 | | | | | 9990755 | GS-64184 |
| A17 | | | | | 8513754 | |
| A18 | | | | | 8513331 | GS-18051 |
| A19 | | | | | 9990570 | GS-64178 |
| A20 | | | | | 9989353 | GS-66062 |
| A21 | | | | | 9137928 | GS-56928 |
| A22 | | | | | 8519066 | GA-10343 |
| A23 | | | | | 9007731 | GS-18049 |
| A24 | | | | | 8519068 | GS-10352 |
| A25 | | | | | 9143901 | GS-57700 |
| A26 | | | | | 7620552 | D-154138 |
| A27 | | | | | 9990768 | GS-64185 |
| C1 thru C3 | 50 | +50 -10 | | 400 | CE41C5000 | |
| C4 thru C7 | 0.01 | 10 | | 400 | CP10A3EE103K | |
| C8 | 50 | +50 -10 | | 400 | CE41C500Q | |
| DS1, DS10 | | | 1/25 | 125 | 7605718 | |
| EA thru EC | | | | | 8009011 | |
| EG, EN | | | | | 8159258 | |
| E6 | | | | | 8516062 | |
| E9 thru E11 | | | | | 8175658 | |
| E12 thru E15 | | | | | 8175334 | |
| F1, F10 | 1 amp | | | | MS90082-1 | |
| J1, J2 | | | | | 7632526 | |
| J3 | | | | | 7632529 | |
| J4, J5 | | | | | 7632527 | |
| J6 | | | | | 7606490 | |
| J7 | | | | | 9000848 | |
| J8 thru J10 | | | | | 7606490 | |
| J11, J12 | | | | | 7599367 | |
| J13 | | | | | 7599662 | |
| J14 | | | | | 9007754 | |
| J15 | | | | | 7599662 | |
| J17, J18 | | | | | 7599367 | |
| J19 thru J26 | | | | | 7599662 | |
| J27 thru J31 | | | | | 7599367 | |
| J32 | | | | | 9150422 | |
| J33 thru J37 | | | | | 7599367 | |
| J38 | | | | | 8519237 | |
| J39 | | | | | 7599367 | |
| J40 | | | | | 7599662 | |
| J41 thru J44 | | | | | MS27035-625B | |
| J45 | | | | | 9003874 | |
| J46 | | | | | 8519232 | |
| J48 | | | | | 9003874 | |
| J49 | | | | | 8519232 | |

| Ref design | Value | Mfr's rating | | | Type, part, or drawing no. | Remarks |
|------------------|-------|--------------|-------|-------|----------------------------|---------|
| | | Tol ±% | Watts | Volts | | |
| J50 | | | | | 9003874 | |
| J51 | | | | | 7599367 | |
| J52, J53 | | | | | 7599662 | |
| J54 | | | | | 9003874 | |
| J55 | | | | | 7583665 | |
| J56 | | | | | 8175215 | |
| J57, J58 | | | | | 7599367 | |
| J59, J60 | | | | | 8519232 | |
| J66 | | | | | 9150422 | |
| J67 | | | | | 8510232 | |
| J70 | | | | | 9150422 | |
| J71 | | | | | MS27035-625B | |
| K1, K2 | | | | | 9976399 | |
| P15 | | | | | 9144413 | |
| P32 thru P55 | | | | | 9144413 | |
| P56 | | | | | 9003507 | |
| P57 | | | | | 9003506 | |
| P58 | | | | | 9003507 | |
| P59 | | | | | 9003506 | |
| P60 | | | | | 7611377 | |
| P61 thru P73 | | | | | 9144413 | |
| P74 | | | | | 7601757 | |
| P76 thru P84 | | | | | 9144413 | |
| P85 | | | | | 7601757 | |
| P86 thru P89 | | | | | 9144413 | |
| P91, P92 | | | | | 9144413 | |
| P94 thru P112 | | | | | 9144413 | |
| P115 | | | | | 9144413 | |
| P118 thru P124 | | | | | 9144413 | |
| P126 thru P128 | | | | | 9144413 | |
| P130 | | | | | 8024493 | |
| P131 | | | | | 9144413 | |
| P141 | | | | | 9144413 | |
| R1 | 2500 | 10 | 2 | | 8175592 | |
| R2 thru R4 | 10 | 5 | 2 | | MS35045-39 | |
| R5 | 310 | 5 | 18 | | RW33G311 | |
| R6 | 2800 | 5 | 37 | | RW22G282 | |
| S4 thru S6 | | | | | 7602749 | |
| S7 | | | | | 8017760 | |
| S8 | | | | | 7602749 | |
| S9 | | | | | 9001495 | |
| T1 | | | | | 7605345 | |
| T2 | | | | | 8011006 | |
| T3 | | | | | 7605549 | |
| T4 | | | | | 8516337 | |
| T5 | | | | | 8519067 | |
| T6 | | | | | 8015382 | |
| TB100 | | | | | 7634156 | |
| TB101 thru TB124 | | | | | 7634159 | |
| Z62 | | | | | 9008115 | |

Part of Z62



NOTES

1. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATION WITH THE UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH.
2. RESISTORS ASSOCIATED WITH NEON INDICATORS ARE 0.1 MEG AND ARE INTEGRAL PARTS OF LAMP SOCKETS A8328095.
3. UNUSED FACILITIES NOT SHOWN IN BODY OF SCHEMATIC ARE AS FOLLOWS:
K6-5, 6, 7, 8, 11 & 12
RVI-3, 6, 7, 8, 9, 10, 11
S8-2 THRU 9 INCL
4. NUMBERS ON ENDS OF LEADS INDICATE TERMINALS TO WHICH THE LEADS ARE CONNECTED IN FINAL ASSEMBLY OF DIRECTOR STATION GROUP.

Figure 88 (U). Acquisition power control panel 9995971—schematic diagram (sheet 1 of 2) (U).

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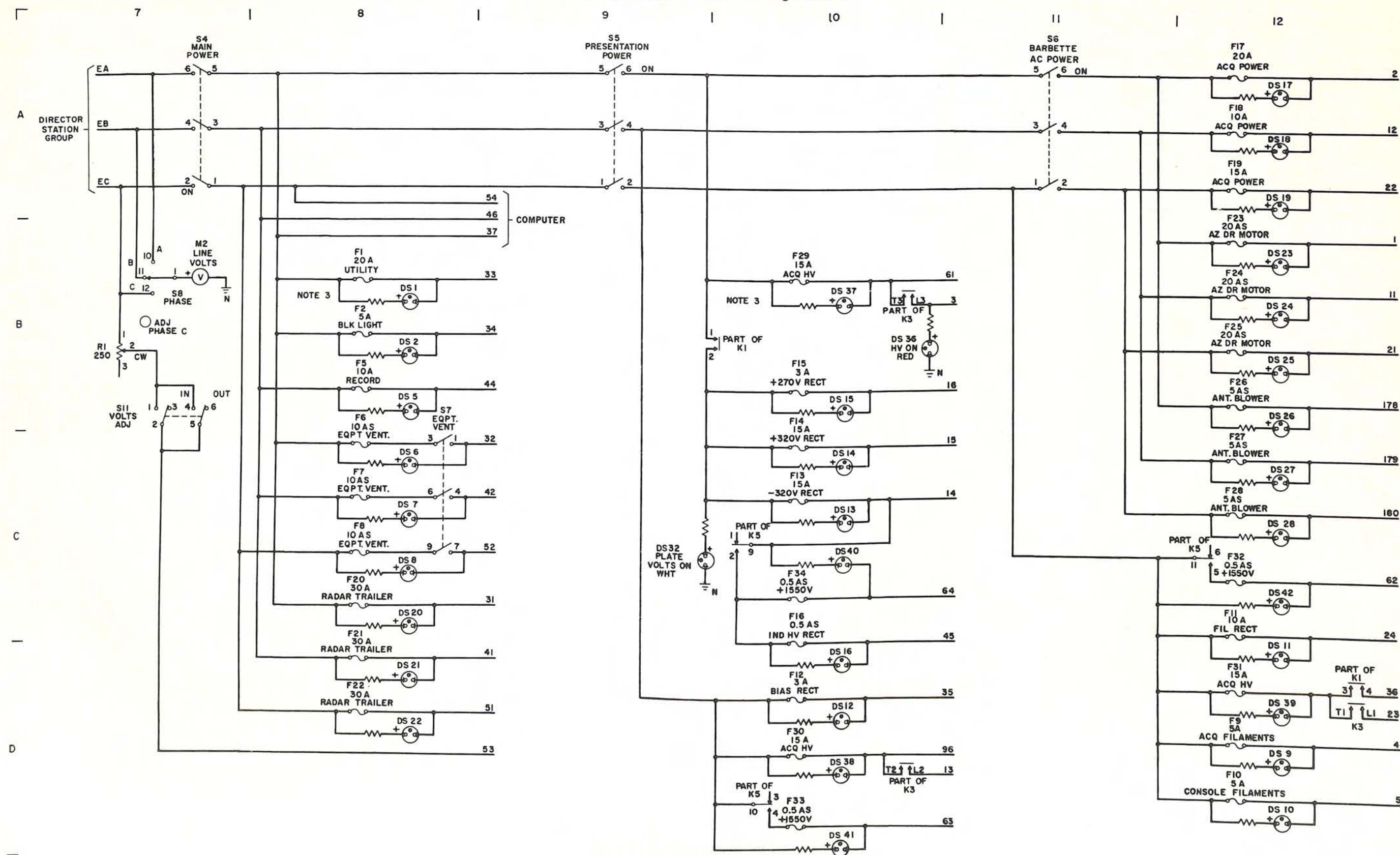


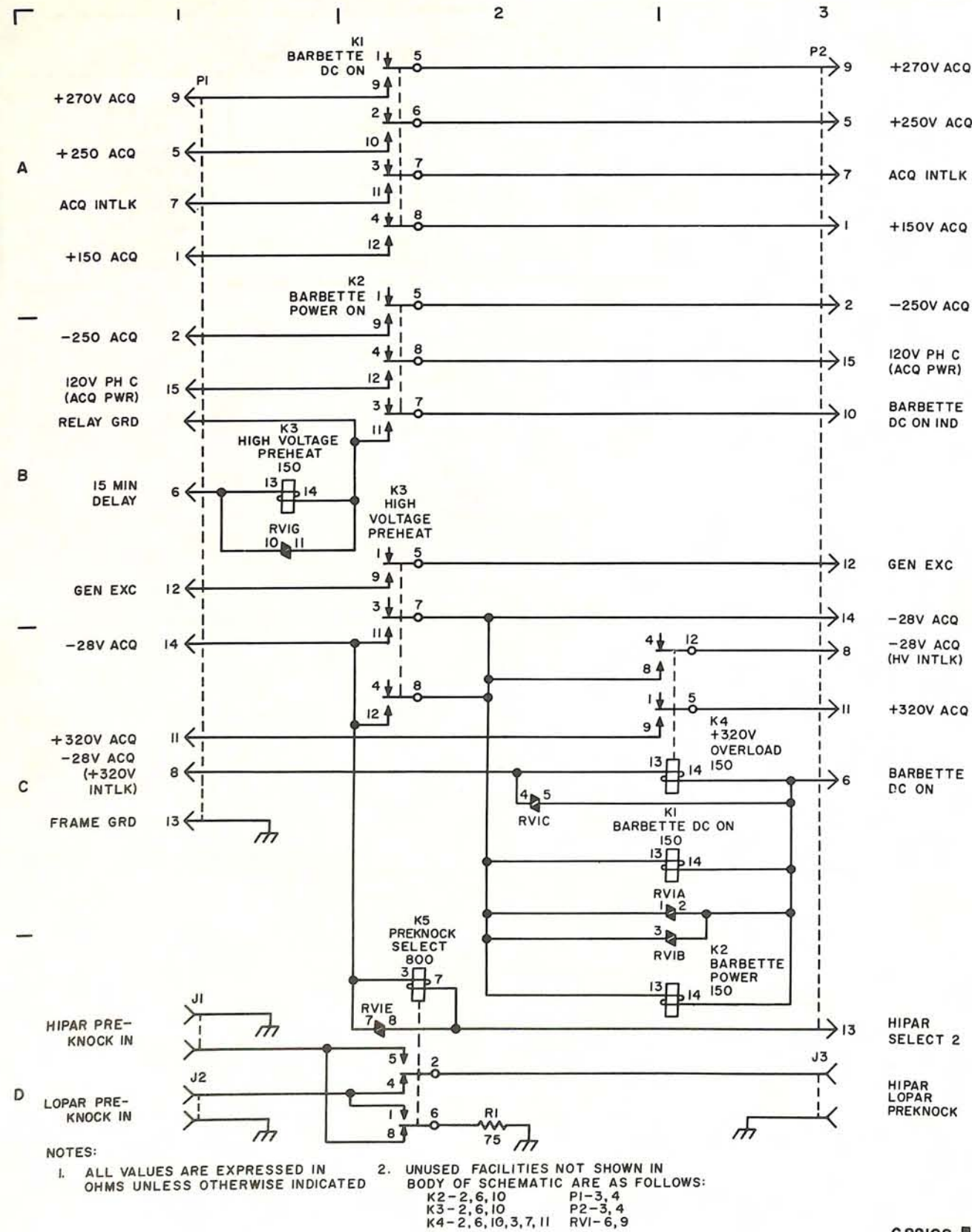
Figure 88 (U). Continued (sheet 2 of 2).

ORD G252283

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| Ref desig | Value | Mfr's rating | | | Type, part, or drawing no. | Remarks |
|--------------|------------|--------------|-------|-------|----------------------------|-----------------------------|
| | | Tol ±% | Watts | Volts | | |
| C1, C2 | 1.0 | 10 | | 600 | 7631713 | CP69B1EF105K |
| I1, I2 | | | 1/25 | 125 | 7605718 | BA-10007-6 |
| I3 | | | | 28 | MS25231-1819 | BA-10010-11 |
| I5 thru I28 | | | 1/25 | 125 | 7605718 | BA-10007-6 (24 required) |
| I29 thru I31 | | | | 28 | MS25231-1819 | BA-10010-11 |
| I32 | | | 1/25 | 125 | 7605718 | BA-10007-6 |
| I33 thru I35 | | | | 28 | MS25231-1819 | BA-10010-11 |
| I36 thru I42 | | | 1/25 | 125 | 7605718 | BA-10007-6 (7 required) |
| I43 | | | | 28 | MS25231-1819 | BA-10010-11 |
| F1 | 20 | | | 125 | 8175384 | BA-10082-148 |
| F2 | 5 | | | 250 | MS90082-4 | F06G5R00A |
| F3, F5 | 10 | | | 250 | MS90082-5 | F06G10R0A |
| F6 thru F8 | 10 | | | 32 | MS90081-8 | F05A10R0B |
| F9, F10 | 5 | | | 250 | MS90082-4 | F06G5R00A |
| F11 | 10 | | | 250 | MS90082-5 | F06G10R0A |
| F12 | 3 | | | 250 | MS90082-3 | F06G3R00A |
| F13, F14 | 15 | | | 250 | MS90082-6 | F06G15R0A |
| F15 | 3 | | | 250 | MS90082-3 | F06G3R00A |
| F16 | 0.5 | | | 250 | 8175351 | |
| F17 | 20 | | | 125 | 8175384 | |
| F18 | 10 | | | 250 | MS90082-5 | BA-10082-148 |
| F19 | 15 | | | 250 | MS90082-6 | F06G10R0A |
| F20 thru F22 | 30 | | | 250 | MS90088-14 | F06G15R0A |
| F23 thru F25 | 20 | | | 32 | MS90081-10 | F15G30R0A |
| F26 thru F28 | 5 | | | 32 | MS90080-5 | F05A20R0B |
| F29 thru F31 | 15 | | | 250 | MS90082-6 | F04A5R00B |
| F32 thru F34 | 0.5 | | | 250 | 8175351 | F06G15R0A |
| K1 | 75 | | | 28 | 7608169 | GA-30003L1 |
| K2 | 425 | | | 28 | 9009252 | G-243879-1 |
| K3 | 74 | | | 28 | 8010156 | GA-51038L1 |
| K4 | 415 | | | 28 | 8175082 | BA-98259 |
| K5, K6 | 425 | | | 28 | 9009252 | G-243879-1 |
| M1 | | | | | 8019154 | GA-52545 |
| M2 | | | | | 8011120 | GA-51138 |
| R1 | 250 | 10 | 50 | | 8177342 | RP151RD251KK |
| R2, R3 | 100 | 10 | 2 | | MS35045-7 | RC42GF101K |
| R4, R5 | 511 | 1 | 1 | | 8513991 | D-176176A |
| R6 | 499 | 1 | 1 | | 8516324 | D-176176A |
| R7 thru R9 | 511 | 1 | 1 | | 8513991 | D-176176A |
| R10 | 536 | 1 | 1 | | 8515690 | D-176176A |
| R11 | 549 | 1 | 1 | | 8516326 | D-176176A |
| R12 | 523 | 1 | 1 | | 8515689 | D-176176A |
| R13 | 499 | 1 | 1 | | 8516324 | D-176176A |
| R14, R15 | 0.277 meg | 1 | 1 | | 7599475 | D-176176A |
| R16 | 0.0777 meg | 1 | 1 | | 8515688 | D-176176A |
| R17 | 0.165 meg | 1 | 1 | | 8017799 | D-176176A |
| R18 | 0.243 meg | 1 | 1 | | 8017994 | D-176176A |
| R19 | 0.277 meg | 1 | 1 | | 7599475 | D-176176A |
| R20 | 0.243 meg | 1 | 1 | | 8017994 | D-176176A |
| R21 | 0.357 meg | 1 | 1 | | 8516322 | D-176176A |
| R22 | 0.294 meg | 1 | 1 | | 8017788 | D-176176A |
| R23 | 0.464 meg | 1 | 1 | | 8516344 | D-176176A |
| R24 | 0.0909 meg | 1 | 1 | | 8023282 | D-176176A |
| R25 | 0.165 meg | 1 | 1 | | 8017799 | D-176176A |
| R26 | 499 | 1 | 1 | | 8516324 | D-176176A |
| RV1 | | | | | 7599075 | D-176692 |
| S1 | | | | | 7602621 | BA-98051 |

| Ref desig | Value | Mfr's rating | | | Type, part, or drawing no. | Remarks |
|-----------|-------|--------------|-------|-------|----------------------------|-------------|
| | | Tol ±% | Watts | Volts | | |
| S2 | | | | | 9001495 | G-243485-4 |
| S3 | | | | | 8016523 | GA-51035L1 |
| S4, S5 | | | | | 8011078 | GA-51037L1 |
| S6 | | | | | 8011077 | GA-51036 |
| S7 | | | | | 7599795 | BA-98050 |
| S8 | | | | | 7614973 | BO-710841 |
| S9 | | | | | 9001495 | G-243485-4 |
| S10 | | | | | 9000774 | G-243486-17 |
| S11, S12 | | | | | 9001495 | G-243485-4 |



(U). LOPAR Relay Assembly 9143901—Apparatus List

| Reference designation | Ordinance part No. | Part description |
|-----------------------|--------------------|--|
| J1, J2, ... J3 | 8531071 | CONNECTOR, RECEPTACLE, ELECTRICAL: stght, 1 female cont |
| K1, K2, ... K3, K4 | 9007313 | RELAY ARMATURE: 4 pdt, cont 110v ac or 26v dc, 5 amp, coil 26v dc, 150 ohm |
| K5 | 8631722 | RELAY, ARMATURE: 5 amp, 26v dc or 110v ac, 800 ohm |
| P1, P2 | 9150421 | CONNECTOR, RECEPTACLE, ELECTRICAL: rect, 15 male cont |
| R1 | MS35043-60 | RESISTOR, FIXED, COMPOSITION: 1/2w, 75 ohm ±5%, type RC20GF750J |
| RV1 | 7599075 | RESISTOR, VOLTAGE SENSITIVE: 21v dc min, 32v dc max reqd to pass 5 ma |

G82102

Figure 89 (U). LOPAR relay assembly 9143901—schematic diagram. (U).

NOTES:

1. UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS. CAPACITANCE VALUES ARE IN MICROFARADS.
2. UNUSED FACILITIES NOT SHOWN ON BODY OF SCHEMATIC ARE AS FOLLOWS:
K1-1,2,6
P1-3,5,8,10

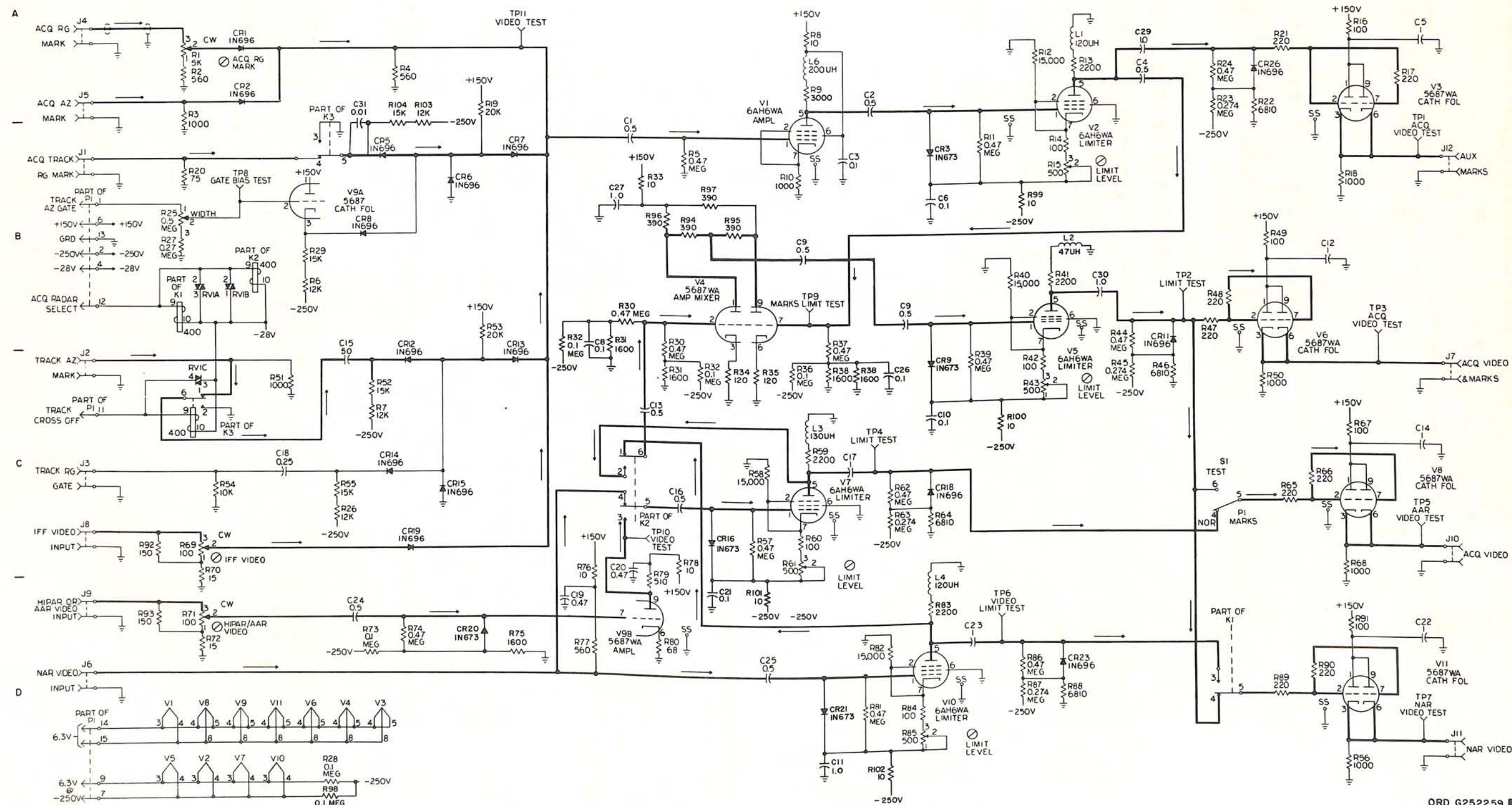


Figure 92 (U). Video and mark mixer 9989191—schematic diagram (U).

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(U) Video and Mark Mixer 9989191—Apparatus List

| Ref desig | Value | Mfr's rating | | | Type, part, or drawing no. | Remarks |
|--------------|-------------|--------------|-------|-------|----------------------------|---------|
| | | Tol \pm % | Watts | Volts | | |
| C1 | 0.5 | 20 | | 200 | 9158151-1 | |
| C2 | 0.5 | 10 | | 600 | CP69B1EF504K1 | |
| C3 | 0.1 | 10 | | 600 | 9144116 | |
| C4 | 0.5 | | | 200 | 9158151-1 | |
| C5 | 1 | 10 | | 400 | 8515939 | |
| C6 | 0.1 | 10 | | 600 | 9144116 | |
| C8 | 0.1 | 10 | | 600 | 9144116 | |
| C9 | 0.5 | 10 | | 600 | CP69B1EF504K1 | |
| C10 | 0.1 | 10 | | 600 | 9144116 | |
| C11 | 1 | 10 | | 600 | CP69B1EF105K1 | |
| C12 | 1 | 10 | | 400 | 8515939 | |
| C13 | 0.5 | 20 | | 200 | 9158151-1 | |
| C14 | 1 | 10 | | 400 | 8515939 | |
| C15 | 50 | +20 -10 | | 60 | 8007692 | |
| C16 | 0.5 | 10 | | 600 | CP69B1EF504K1 | |
| C17 | 1 | 10 | | 600 | CP69B1EF105K1 | |
| C18 | 0.25 | 20 | | 350 | 9003937 | |
| C19,C20 | 0.47 | 20 | | 400 | 8175944 | |
| C21 | 0.1 | 10 | | 600 | 9144116 | |
| C22 | 1 | 10 | | 400 | 8515939 | |
| C23 | 1 | 10 | | 600 | CP69B1EF105K1 | |
| C24 | 0.5 | 20 | | 200 | 9158151-1 | |
| C25 | 0.5 | 10 | | 600 | CP69B1EF504K1 | |
| C26 | 0.1 | 10 | | 600 | 9144116 | |
| C27 | 1 | 10 | | 600 | CP69B1EF105K1 | |
| C29,C30 | 1 | 20 | | 200 | 9002781 | |
| CR1,CR2 | | | | | 1N696 | |
| CR3 | | | | | 9016939 | |
| CR5 thru CR8 | | | | | 1N696 | |
| CR9 | | | | | 9016939 | |
| CR11 thru | | | | | 1N696 | |
| CR15 | | | | | | |
| CR16 | | | | | 9016939 | |
| CR18,CR19 | | | | | 1N696 | |
| CR20,CR21 | | | | | 9016939 | |
| CR23 | | | | | 1N696 | |
| CR26 | | | | | 1N696 | |
| J1 thru J12 | | | | | MS27035-625B | |
| K1 thru K3 | 400 | | | | 9011925 | |
| L1 | 120 μ h | | | | 9024735 | |
| L2 | 47 μ h | | | | 8520587 | |
| L3 | 130 μ h | | | | 9139026 | |
| L4 | 120 μ h | | | | 9024735 | |
| L6 | 200 μ h | | | | 9156840-12 | |
| P1 | | | | | 9980454 | |
| R1 | 5000 | 10 | 1/2 | | 9138853 | |
| R2 | 560 | 10 | 1/2 | | MS35043-202 | |
| R3 | 1000 | 10 | 1/2 | | MS35043-13 | |
| R4 | 560 | 5 | 1/2 | | MS35043-81 | |
| R5 | 0.47 meg | 10 | 1/2 | | MS35043-29 | |
| R6,R7 | 12,000 | 5 | 2 | | MS35045-113 | |
| R8 | 10 | 10 | 1/2 | | MS35043-1 | |
| R9 | 3000 | 5 | 1/2 | | RC20GF302J | |
| R10 | 1000 | 10 | 1/2 | | MS35043-13 | |
| R11 | 0.47 meg | 10 | 1/2 | | MS35043-29 | |
| R12 | 15,000 | 5 | 2 | | MS35045-115 | |
| R13 | 2200 | 5 | 2 | | RC42GF222J | |
| R14 | 100 | 10 | 1/2 | | MS35043-7 | |
| R15 | 500 | 10 | 1/2 | | 9722385 | |

(U) Video and Mark Mixer 9989191—Apparatus List—Continued

| Ref desig | Value | Mfr's rating | | | Type, part, or drawing no. | Remarks |
|-----------|-----------|--------------|-------|-------|----------------------------|---------|
| | | Tol \pm % | Watts | Volts | | |
| R16 | 100 | 10 | 1/2 | | MS35043-7 | |
| R17 | 220 | 10 | 1/2 | | MS35043-9 | |
| R18 | 1000 | 10 | 1/2 | | MS35043-13 | |
| R19 | 20,000 | 5 | 2 | | MS35045-118 | |
| R20 | 75 | 5 | 1/2 | | MS35043-60 | |
| R21 | 220 | 10 | 1/2 | | MS35043-9 | |
| R22 | 6810 | 1 | 1/2 | | 9010171 | |
| R23 | 0.27 meg | 1 | 1/2 | | 8626918 | |
| R24 | 0.47 meg | 10 | 1/2 | | MS35043-29 | |
| R25 | 0.5 meg | 10 | 1/2 | | 9144158 | |
| R26 | 12,000 | 5 | 2 | | MS35045-113 | |
| R27 | 0.27 meg | 5 | 1/2 | | MS35043-145 | |
| R28 | 0.1 meg | 10 | 1/2 | | MS35043-25 | |
| R29 | 15,000 | 5 | 2 | | MS35045-115 | |
| R30 | 0.47 meg | 10 | 1/2 | | MS35043-29 | |
| R31 | 1600 | 5 | 1/2 | | MS35043-92 | |
| R32 | 0.1 meg | 5 | 2 | | MS35045-135 | |
| R33 | 10 | 10 | 1/2 | | MS35043-1 | |
| R34,R35 | 120 | 5 | 1/2 | | MS35043-65 | |
| R36 | 0.1 meg | 5 | 2 | | MS35045-135 | |
| R37 | 0.47 meg | 10 | 1/2 | | MS35043-29 | |
| R38 | 1600 | 5 | 1/2 | | MS35043-92 | |
| R39 | 0.47 meg | 10 | 1/2 | | MS35043-29 | |
| R40 | 15,000 | 5 | 2 | | MS35045-115 | |
| R41 | 2200 | 5 | 2 | | RC42GF222J | |
| R42 | 100 | 10 | 1/2 | | MS35043-7 | |
| R43 | 500 | 10 | 1/2 | | 9722385 | |
| R44 | 0.47 meg | 10 | 1/2 | | MS35043-29 | |
| R45 | 0.274 meg | 1 | 1/2 | | 8626918 | |
| R46 | 6810 | 1 | 1/2 | | 9010171 | |
| R47,R48 | 220 | 10 | 1/2 | | MS35043-9 | |
| R49 | 100 | 10 | 1/2 | | MS35043-7 | |
| R50,R51 | 1000 | 10 | 1/2 | | MS35043-13 | |
| R52 | 15,000 | 5 | 2 | | MS35045-115 | |
| R53 | 20,000 | 5 | 2 | | MS35045-118 | |
| R54 | 1000 | 5 | 1/2 | | MS35043-111 | |
| R55 | 15,000 | 5 | 2 | | MS35045-115 | |
| R56 | 1000 | 10 | 1/2 | | MS35043-13 | |
| R57 | 0.47 meg | 10 | 1/2 | | MS35043-29 | |
| R58 | 15,000 | 5 | 2 | | MS35045-115 | |
| R59 | 2200 | 5 | 2 | | RC42GF222J | |
| R60 | 100 | 10 | 1/2 | | MS35043-7 | |
| R61 | 500 | 10 | 1/2 | | 9722385 | |
| R62 | 0.47 meg | 10 | 1/2 | | MS35043-29 | |
| R63 | 0.274 meg | 1 | 1/2 | | 8626918 | |
| R64 | 6810 | 1 | 1/2 | | 9010171 | |
| R65,R66 | 220 | 10 | 1/2 | | MS35043-9 | |
| R67 | 100 | 10 | 1/2 | | MS35043-7 | |
| R68 | 1000 | 10 | 1/2 | | MS35043-13 | |
| R69 | 100 | 10 | 1/2 | | 9144109 | |
| R70 | 15 | 5 | 1/2 | | MS35043-43 | |
| R71 | 100 | 10 | 1/2 | | 9144109 | |
| R72 | 15 | 5 | 1/2 | | MS35043-43 | |
| R73 | 0.1 meg | 5 | 1 | | MS90194-97 | |
| R74 | 0.47 meg | 10 | 1/2 | | MS35043-29 | |
| R75 | 1600 | 5 | 1/2 | | MS35043-92 | |
| R76 | 10 | 10 | 1/2 | | MS35043-1 | |
| R77 | 560 | 10 | 1/2 | | MS35043-202 | |

(U) Video and Mark Mixer 9989191—Apparatus List—Continued

| Ref desig | Value | Mfr's rating | | | Type, part, or drawing no. | Remarks |
|---------------|-----------|--------------|-------|-------|----------------------------|---------|
| | | Tol ±% | Watts | Volts | | |
| R78 | 10 | 10 | 1/2 | | MS35043-1 | |
| R79 | 510 | 5 | 1/2 | | MS35043-80 | |
| R80 | 68 | 5 | 1/2 | | MS35043-59 | |
| R81 | 0.47 meg | 10 | 1/2 | | MS35043-29 | |
| R82 | 15,000 | 5 | 2 | | MS35045-115 | |
| R83 | 2200 | 5 | 2 | | RC42GF222J | |
| R84 | 100 | 10 | 1/2 | | MS35043-7 | |
| R85 | 500 | 10 | 1/2 | | 9722385 | |
| R86 | 0.47 meg | 10 | 1/2 | | MS35043-29 | |
| R87 | 0.274 meg | 1 | 1/2 | | 8626918 | |
| R88 | 6810 | 1 | 1/2 | | 9010171 | |
| R89,R90 | 220 | 10 | 1/2 | | MS35043-9 | |
| R91 | 100 | 10 | 1/2 | | MS35043-7 | |
| R92,R93 | 150 | 5 | 1/2 | | MS35043-67 | |
| R94 thru R97 | 390 | 5 | 1/2 | | MS35043-77 | |
| R98 | 0.1 meg | 10 | 1/2 | | MS35043-25 | |
| R99 thru R102 | 10 | 10 | 12 | | MS35043-1 | |
| R103 | 12,000 | 5 | 2 | | MS35045-113 | |
| R104 | 15,000 | 5 | 2 | | MS35045-115 | |
| RV1 | | | | | 8515017 | |
| S1 | | | | | 9001495 | |
| TP1 thru | | | | | 9976477 | |
| TP11 | | | | | | |
| V1,V2 | | | | | 7599312 | |
| V3,V4 | | | | | 9024636 | |
| V5 | | | | | 7599312 | |
| V6 | | | | | 9024636 | |
| V7 | | | | | 7599312 | |
| V8,V9 | | | | | 9024636 | |
| V10 | | | | | 7599312 | |
| V11 | | | | | 9024636 | |

MEASUREMENT NOTES

1. General

a. Measurements are made with all variable resistors adjusted for normal operation and all tubes in sockets.

b. Notation 3 to 4 in the Pin column indicates that measurement is made between pins 3 and 4; notation 4, 5 to 8 indicates that measurement is made between pin 4 and pin 8 or pin 5 and pin 8.

c. All values given are typical.

2. Voltage

a. Measurements are made with system energized through low voltage condition and with cables removed from J1, J2, J3, J4, J5, J6, J9, and J10.

b. Measurements are made with electronic multimeter TS-505/U using the scale that permits reading nearest full scale.

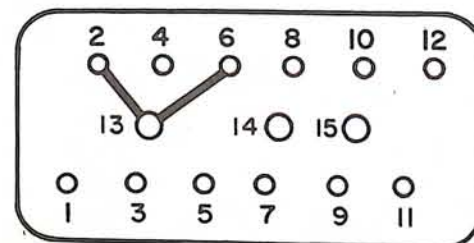
c. Voltages are +dc measured to ground unless otherwise indicated.

3. Resistance

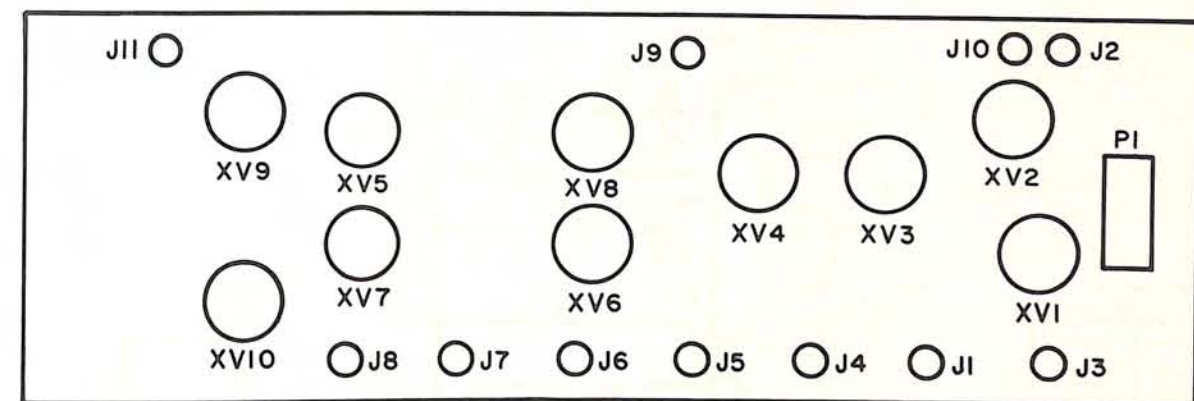
a. Measurements are made with multimeter TS-352/U using the scale that permits reading nearest midscale.

b. Measurements are made with all external cables disconnected and connector P1 strapped as indicated.

c. Resistances are measured to ground unless otherwise indicated.



PIN STRAPPING ARRANGEMENT FOR P1



BOTTOM VIEW OF CHASSIS

| Ref design | | Tube type | Tube function | Plate | | | Suppressor | | | Screen | | | Control | | | Cathode | | | Filament | | |
|------------|------|------------|-----------------------|--------|------------|------------|-----------------|-------|---------|--------|-------|------|---------|--------------|--------------------|---------|----------|----------------|-----------|--------|------|
| Socket | Tube | | | Pin | Volts | Ohms | Pin | Volts | Ohms | Pin | Volts | Ohms | Pin | Volts | Ohms | Pin | Volts | Ohms | Pin | Volts | Ohms |
| XV1 | V1 | 5725/6AS6W | Coincidence amplifier | 5 | 150 | 2,800 | 7 | -5.1 | 262,000 | 6 | 150 | 100 | 1 | -10 | 494,000 | 2 | 0 | 0 | 3 to 4 | 6.3 ac | < 1 |
| XV2 | V2 | 5725/6AS6W | Coincidence amplifier | 5 | 150 | 5,600 | 7 | -12.3 | 484,000 | 6 | 150 | 56 | 1 | -9.5 | 480,000 | 2 | 0 | 0 | 3 to 4 | 6.3 ac | < 1 |
| XV3 | V3 | 6AH6 | Clipper | 5 | 136 | 2,800 | Same as cathode | | | 6 | 150 | 100 | 1 | -2.5 | 4,600 | 2, 7 | 0 | 0 | 3 to 4 | 6.3 ac | < 1 |
| XV4 | V4 | 6AH6 | Marker amplifier | 5 | 150 | 1,200 | Same as cathode | | | 6 | 150 | 10 | 1 | -6.2 | 478,000 | 2, 7 | 0 | 160 | 3 to 4 | 6.3 ac | < 1 |
| XV5 | V5 | 6AH6 | Video amplifier | 5 | 140 | 1,900 | Same as cathode | | | 6 | 150 | 100 | 1 | 0 | 20 Δ | 2, 7 | 3 | 178 | 3 to 4 | 6.3 ac | < 1 |
| XV6 | V6 | 6AH6 | Clipper | 5 | 140 | 1,900 | Same as cathode | | | 6 | 150 | 10 | 1 | -1.8 | 200,000 | 2, 7 | 0.8 | 120 | 3 to 4 | 6.3 ac | < 1 |
| XV7 | V7 | 5687WA | Cathode follower | 1 9 | 150 150 | 68 68 | | | | | | | 2 7 | -6.5 -6.5 | 8,000 Δ 8,200 Δ | 3 6 | 3 3 | 1,000 1,000 | 4, 5 to 8 | 6.3 ac | < 1 |
| XV8 | V8 | 5687WA | Amplifier mixer | 1 9 | 150 150 | 560 560 | | | | | | | 2 7 | -6.5 -6.5 | 2,900 Δ 2,900 Δ | 3 6 | 0 0.5 | 0 68 | 4, 5 to 8 | 6.3 ac | < 1 |
| XV9 | V9 | 6AH6 | Video amplifier | 5 | 138 | 1,600 | Same as cathode | | | 6 | 150 | 100 | 1 | 0 | 20 Δ | 2, 7 | 1.8 | 178 | 3 to 4 | 6.3 ac | < 1 |
| XV10 | V10 | 5687WA | Cathode follower | 1 9 | 150 150 | 68 68 | | | | | | | 2 7 | -6.5 -6.5 | 8,000 Δ 8,200 Δ | 3 6 | 3 3 | 1,000 1,000 | 4, 5 to 8 | 6.3 ac | < 1 |

< Less than. Δ Reverse meter leads if reading is not obtained.

Figure 92A (U). Video and mark mixer 9145581—voltage and resistance chart. (U)

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ORD G28841

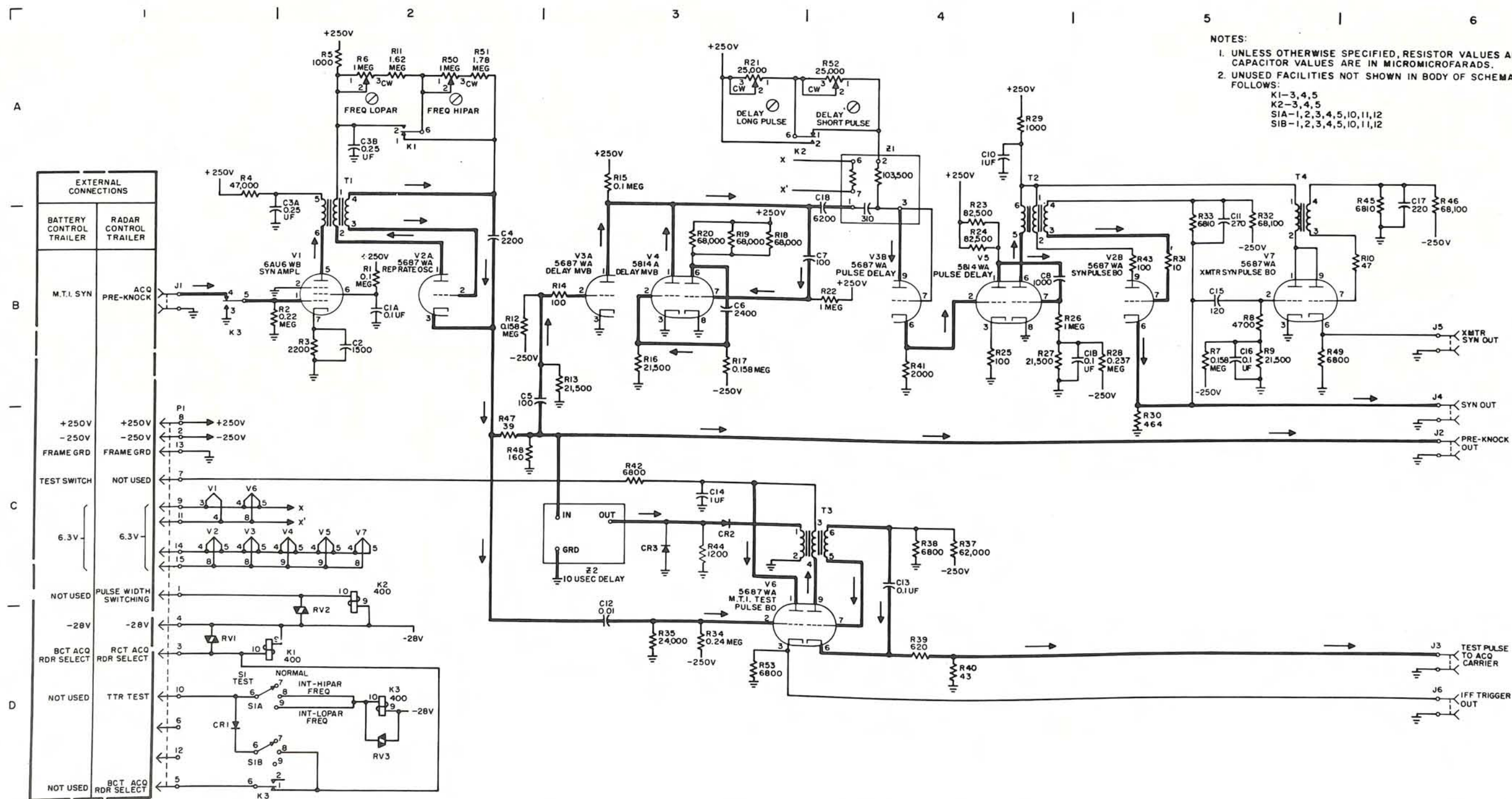


Figure 93 (U). Acquisition-track synchronizer 9989392—schematic diagram (U).

ORD G252258

| Ref desig | Value | Mfr's rating | | | Type, part, or drawing no. | Remarks |
|--------------|-----------|--------------|-------|-------|----------------------------|------------|
| | | Tol ±% | Watts | Volts | | |
| C1A, C1B | 0.1 uf | +20 -10 | | 600 | CP69B4EF104V1 | |
| C2 | 1500 | 10 | | 500 | CM30B152JN3 | |
| | | | | 600 | CP69B4EF254V1 | |
| C3A, C3B | 0.25 uf | +20 -10 | | 600 | CP69B4EF254V1 | |
| C4 | 2200 | 2 | | 500 | CM30E222GN3 | |
| C5 | 100 | 10 | | 500 | CM15B101KN3 | |
| C6 | 2400 | 5 | | 500 | CM30D242JN3 | |
| C7 | 100 | 5 | | 500 | CM25E101JN3 | |
| C8 | 1000 | 10 | | 500 | CM25B102JN3 | |
| C10 | 1 uf | 10 | | 600 | CP69B1EF105K1 | |
| C11 | 270 | 5 | | 500 | CM15B271JN3 | |
| C12 | 0.01 | 10 | | 300 | CM35B103JN3 | |
| C13 | 0.1 uf | 10 | | 600 | CP28A1EF104K1 | |
| C14 | 1 uf | 10 | | 600 | CP69B1EF105K1 | |
| C15 | 120 | 10 | | 500 | CM15B121KN3 | |
| C16 | 0.1 uf | 20 | | 200 | 8023769 | |
| C17 | 220 | 5 | | 500 | CM15B221JN3 | |
| C18 | 6200 | 2 | | 500 | CM35E622GN3 | |
| CR1 | | | | | 9011788 | 1N1415 |
| CR2, CR3 | | | | | 9139089 | 1N672 |
| J1 thru J6 | | | | | 8531071 | UG-625B/U |
| K1 thru K3 | 400 | | | | 9011925 | |
| P1 | | | | | 7598934 | |
| R1 | 0.1 meg | 10 | 1/2 | | MS35043-25 | RC20GF104K |
| R2 | 0.22 meg | 10 | 1/2 | | MS35043-27 | RC20GF224K |
| R3 | 2200 | 10 | 1/2 | | MS35043-15 | RC20GF222K |
| R4 | 47,000 | 10 | 1/2 | | MS35043-23 | RC20GF473J |
| R5 | 1000 | 10 | 1/2 | | MS35043-13 | RC20GF102K |
| R6 | 1 meg | 20 | 2 | | 9138734 | |
| R7 | 0.158 meg | 1 | 1 | | 9024876 | |
| R8 | 4700 | 10 | 1/2 | | MS35043-17 | RC20GF472J |
| R9 | 21,500 | 1 | 1/2 | | 9011212 | |
| R10 | 47 | 10 | 12 | | MS35043-5 | RC20GF470K |
| R11 | 1.62 meg | 1 | 1 | | 9137393 | |
| R12 | 0.158 meg | 1 | 1 | | 9024876 | |
| R13 | 21,500 | 1 | 1/2 | | 9011212 | |
| R14 | 100 | 10 | 1/2 | | MS35043-7 | RC20GF101K |
| R15 | 0.1 meg | 1 | 1/2 | | 9002937 | |
| R16 | 21,500 | 1 | 1/2 | | 9011212 | |
| R17 | 0.158 meg | 1 | 1 | | 9024876 | |
| R18 thru R20 | 68,000 | 10 | 2 | | MS35045-24 | RC42GF683K |
| R21 | 25,000 | 5 | 3 | | 8010404 | |
| R22 | 1 meg | 1 | 1 | | 8519468 | |
| R23, R24 | 82,500 | 1 | 2 | | 9024879 | |
| R25 | 100 | 1 | 1/4 | | 9010391 | |
| R26 | 1 meg | 10 | 1/2 | | MS35043-31 | RC20GF105K |
| R27 | 21,500 | 1 | 1/2 | | 9011212 | |
| R28 | 0.237 meg | 1 | 1 | | 9010166 | |
| R29 | 1000 | 10 | 1/2 | | MS35043-13 | RC20GF102K |
| R30 | 464 | | 1/2 | | 8626920 | |
| R31 | 10 | 10 | 1/2 | | MS35043-1 | RC20GF100K |
| R32 | 68,100 | 1 | 2 | | 9137399 | |
| R33 | 6810 | 1 | 1/2 | | 9010171 | |
| R34 | 0.24 meg | 5 | 1 | | MS35044-158 | RC32GF244J |
| R35 | 24,000 | 5 | 1/2 | | MS35043-120 | RC20GF243J |
| R37 | 62,000 | 5 | 2 | | MS35045-130 | RC42GF623J |
| R38 | 6800 | 5 | 1/2 | | MS35043-107 | RC20GF682J |
| R39 | 620 | 5 | 1/2 | | MS35043-82 | RC20GF621J |
| R40 | 43 | 5 | 1/2 | | MS35043-54 | RC20GF430J |

| Ref desig | Value | Mfr's rating | | | Type, part, or drawing no. | Remarks |
|--------------|----------|--------------|-------|-------|----------------------------|------------|
| | | Tol ±% | Watts | Volts | | |
| R41 | 2000 | 1 | 1/4 | | 9011607 | |
| R42 | 6800 | 5 | 1/2 | | MS35043-107 | RC20GF682J |
| R43 | 100 | 10 | 1/2 | | MS35043-7 | RC20GF101K |
| R44 | 1200 | 5 | 1/2 | | MS35043-89 | RC20GF122J |
| R45 | 6810 | 1 | 1/2 | | 9010171 | |
| R46 | 68,100 | 1 | 2 | | 9137399 | |
| R47 | 39 | 5 | 1/2 | | MS35043-53 | RC20GF390J |
| R48 | 160 | 5 | 1/2 | | MS35043-68 | RC20GF161J |
| R49 | 6800 | 5 | 1/2 | | MS35043-107 | RC20GF682J |
| R50 | 1 meg | 20 | 2 | | 9138734 | |
| R51 | 1.78 meg | 1 | 1 | | 9144101 | |
| R52 | 25,000 | 5 | 3 | | 8010404 | |
| R53 | 6800 | 5 | 1/2 | | MS35043-107 | RC20GF682J |
| RV1 thru RV3 | | | | | 9024874 | |
| S1 | | | | | 9138804 | |
| T1 | | | | | 7599403 | |
| T2 | | | | | 8017765 | |
| T3 | | | | | 7599403 | |
| T4 | | | | | 8518481 | |
| V1 | | | | | J6AU6WB | |
| V2, V3 | | | | | 5687WA | |
| V4, V5 | | | | | 5814A | |
| V6, V7 | | | | | 5687WA | |
| Z1 | | | | | 8010775 | |
| Z2 | | | | | 9986735 | |

(U) Acquisition-Track Synchronizer 9989392—Voltage and Resistance Chart

1. General

a. Measurements are made with all variable resistors adjusted for normal operation and all tubes in sockets.

b. Notation 3, 4 in the Pin column indicates that measurement is made between pins 3 and 4; notation 4, 5 to 8 indicates that measurement is made between pin 4 and pin 8 or pin 5 and pin 8; notation 4, 5 to 9 indicates that measurement is made between pin 4 and pin 9 or pin 5 and pin 9.

2. Voltage

a. Measurements are made with system energized through low voltage condition and with cables removed from J1 through J6.

b. Measurements are made with electronic multimeter TS-505/U using the scale that permits reading nearest full scale.

c. Voltages are +dc measured to ground unless otherwise indicated.

3. Resistance

a. Measurements are made with multimeter TS-352/U using the scale that permits reading nearest midscale.

b. Measurements are made with all external cables disconnected.

c. Resistances are measured to ground unless otherwise indicated.

d. On connector P1, strap pins 2, 7, 8, and 13 together.

| Ref design | | Tube type | Tube function | Plate | | | Suppressor | | | Screen | | | Control | | | Cathode | | | Filament | | |
|------------|------|-----------|--------------------------------------|-------|-------|-----------|------------|-------|------|--------|-------|---------|---------|-------|-----------|---------|-------|-------|-----------|--------|------|
| Socket | Tube | | | Pin | Volts | Ohms | Pin | Volts | Ohms | Pin | Volts | Ohms | Pin | Volts | Ohms | Pin | Volts | Ohms | Pin | Volts | Ohms |
| XV1 | V1 | 6AU6WB | Sync amplifier | 5 | 185 | 47,000 | 2 | 0 | 0 | 6 | 185 | 100,000 | 1 | 0 | 0.22 meg | 7 | 4.9 | 2,200 | 3 to 4 | 6.3 ac | < 1 |
| XV2 | V2A | 5687WA | Rep rate blocking oscillator | 1 | 250 | 1,000 | | | | | | | 2 | -82 | 2.12 meg | 3 | — | 200 | 4, 5 to 8 | 6.3 ac | < 1 |
| | V2B | | Sync pulse blocking oscillator | 9 | 250 | 1,100 | | | | | | | 7 | -24 | 6,200 | 6 | -1.4 | 430 | | | |
| XV3 | V3A | 5687WA | Delay MVB | 1 | 235 | 0.1 meg | | | | | | | 2 | -30 | 19,000 | 3 | 0 | 0 | 4, 5 to 8 | 6.3 ac | < 1 |
| | V3B | | Pulse delay | 9 | 2.8 | 0.115 meg | | | | | | | 7 | 2.8 | 0.115 meg | 6 | 2.6 | 2,000 | | | |
| XV4 | V4A | 5814A | Delay MVB | 1 | 235 | 0.1 meg | | | | | | | 2 | -30 | 19,000 | 3 | 0 | 0 | 4, 5 to 9 | 6.3 ac | < 1 |
| | V4B | | | 6 | 75 | 23,000 | | | | | | | 7 | 0 | 1 meg | 8 | 0 | 0 | | | |
| XV5 | V5A | 5814A | Pulse delay amplifier | 1 | 27 | 41,000 | | | | | | | 2 | 2.6 | 2,000 | 3 | 0.54 | 100 | 4, 5 to 9 | 6.3 ac | < 1 |
| | V5B | | | 6 | 250 | 1,000 | | | | | | | 7 | -5 | 1.2 meg | 8 | 0 | 0 | | | |
| XV6 | V6A | 5687WA | MTI test pulse blocking oscillator | 1 | 0 | 6,800 | | | | | | | 2 | -22 | 22,000 | 3 | 0 | 6,800 | 4, 5 to 8 | 6.3 ac | < 1 |
| | V6B | | | 9 | 0 | 6,800 | | | | | | | 7 | -26 | 6,150 | 6 | 0 | 620 | | | |
| XV7 | V7A | 5687WA | Transmitter sync blocking oscillator | 1 | 250 | 1,000 | | | | | | | 2 | -30 | 23,000 | 3 | 0 | 0 | 4, 5 to 8 | 6.3 ac | < 1 |
| | V7B | | | 9 | 250 | 1,000 | | | | | | | 7 | -23 | 6,400 | 6 | 0 | 6,800 | | | |

< Less than.

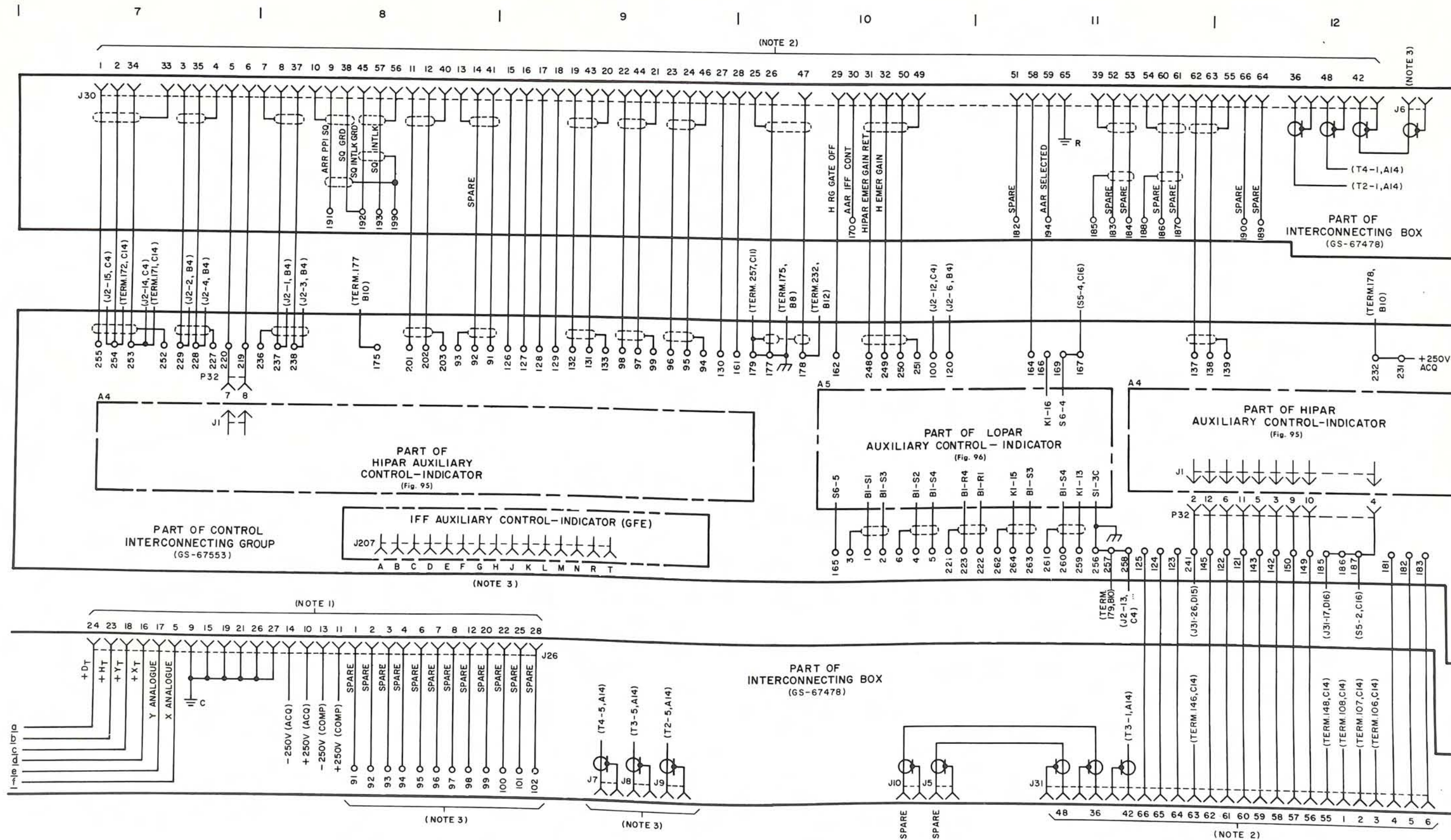
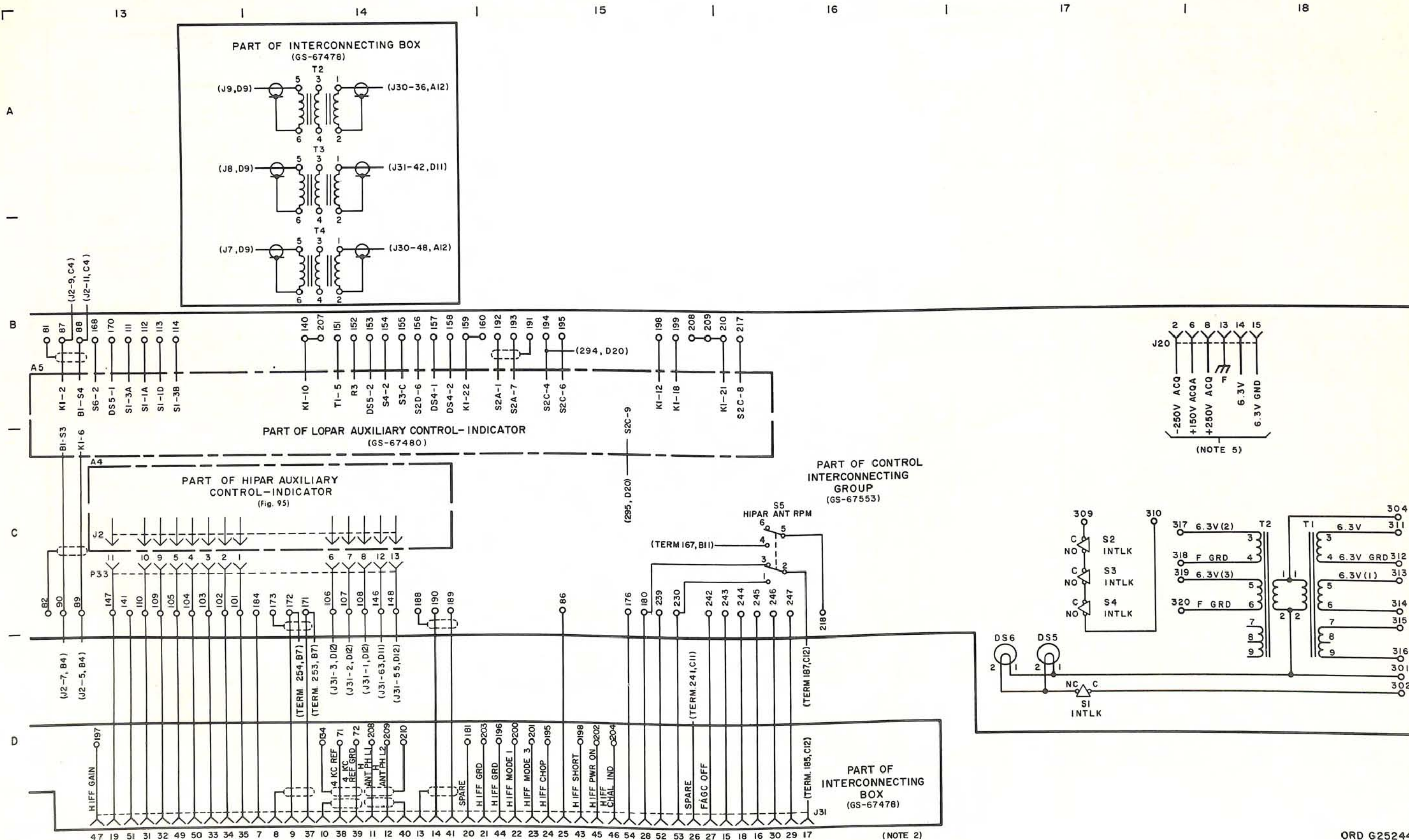
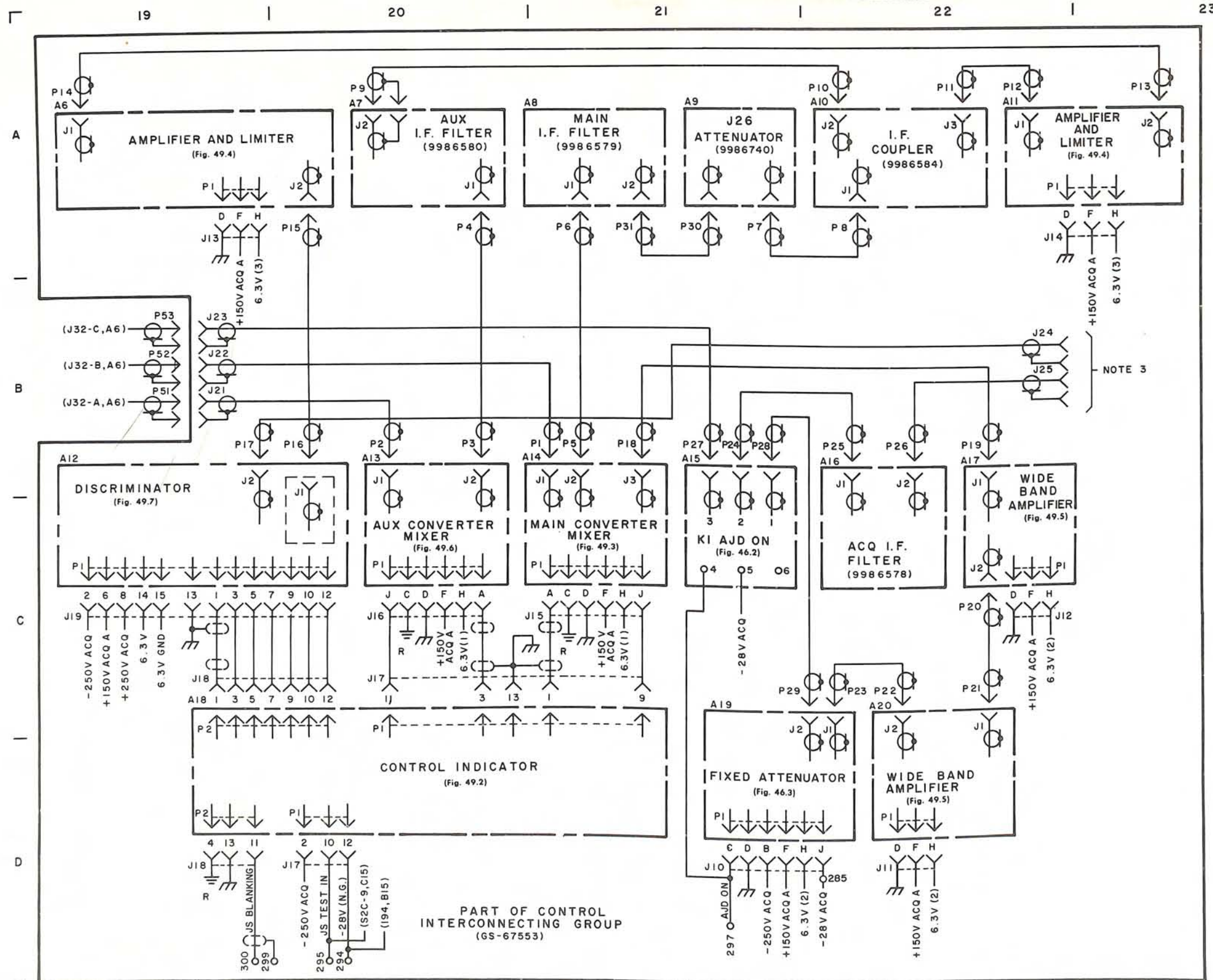


Figure 94 (U). Continued (sheet 2 of 5).

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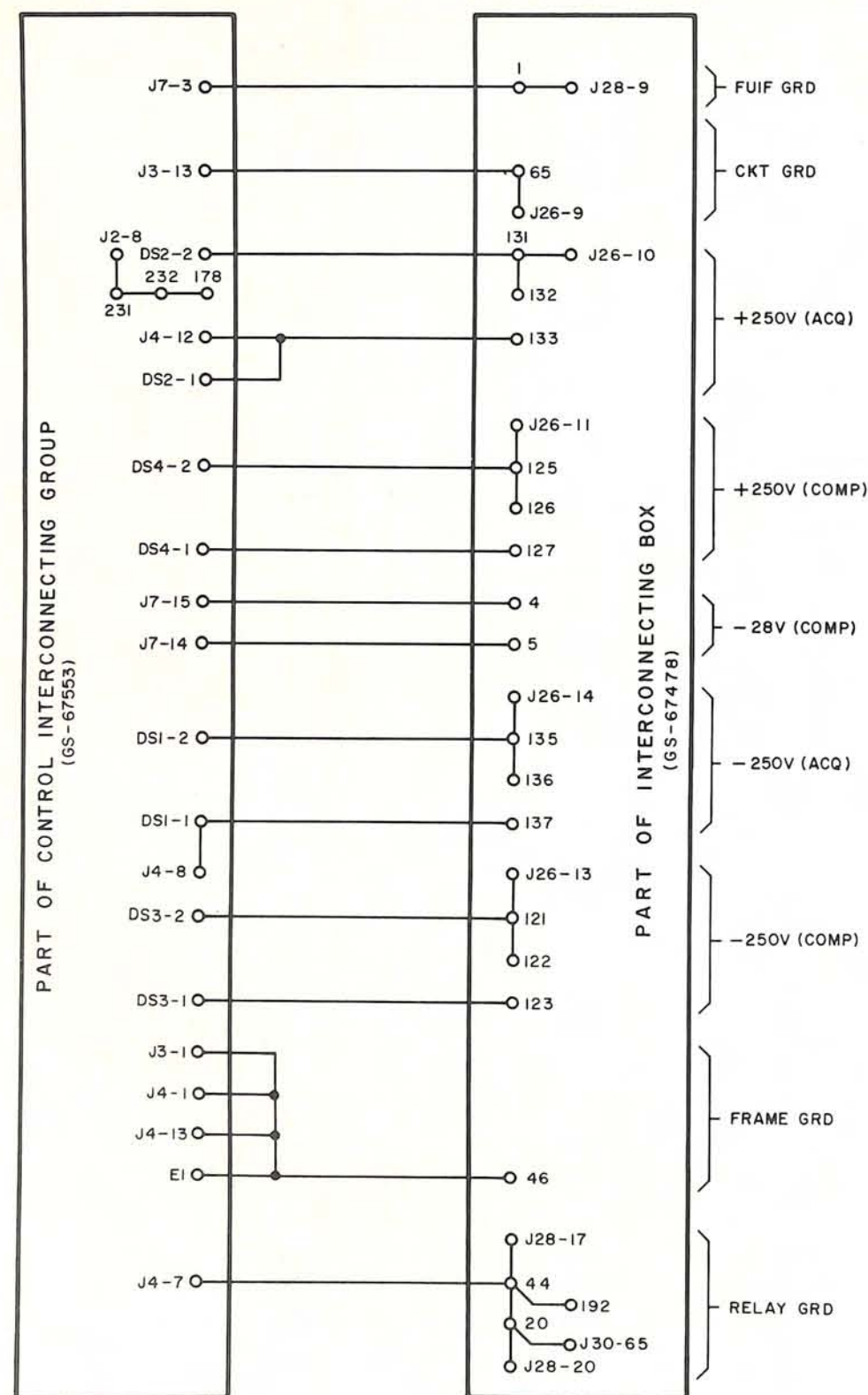


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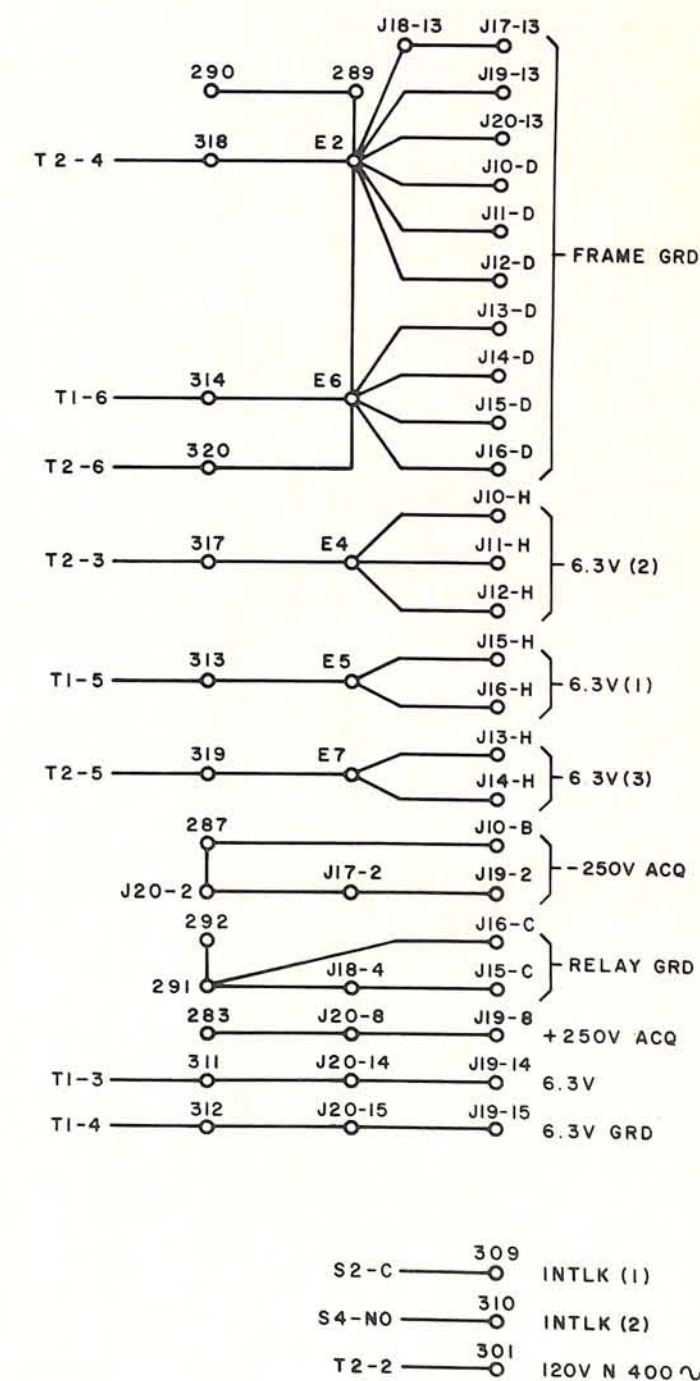
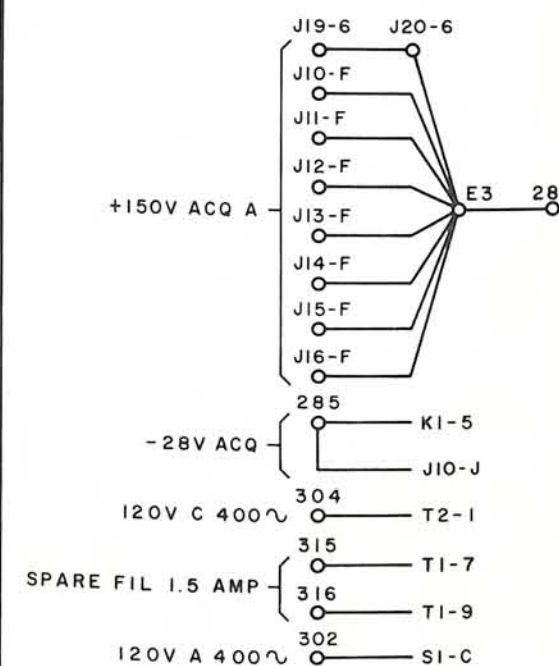
1. REFER TO TM9-1430-254-20/2
2. REFER TO TM9-1430-254-20/3
3. REFER TO SCHEMATIC OF TRAILER MOUNTED DIRECTOR STATION (GS-67471) 9993053
4. UNUSED FACILITIES NOT SHOWN IN BODY OF SCHEMATIC ARE AS FOLLOWS:
J3-6,7,12,14,15
J4-8,14,15
J5-1,3,5,7,8,9,10,11,12,13,14,15
J7-1,6,8,9,10,11,12,13
5. CONNECTOR J20 IS NOT USED IN THIS MODIFICATION AND IS PROVIDED FOR FUTURE USE
6. UNUSED FACILITIES ADDED BY THE LAJD MODIFICATION AND NOT SHOWN IN BODY OF SCHEMATIC ARE AS FOLLOWS:
CPI
J10-A,E
J11-A,B,C,E,J
J12-A,B,C,E,J
J13-A,B,C,E,J
J14-A,B,C,E,J
J15-B,E
J16-B,E
J17-4,5,6,7,8,14,15
J18-2,6,8,14,15
J19-4,11
J20-1,3,4,5,7,9,10,11,12
K1-6
7. TERMINAL LOCATED ON SHEET 5.

Figure 94 (U). Continued (sheet 4 of 5).

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**PART OF CONTROL
INTERCONNECTING GROUP**
(GS-67553)



ORD G252448

Figure 94 (U). Continued (sheet 5 of 5).

CONFIDENTIAL

| (U) Index of Terminals— Auxiliary Acquisition Interconnecting Box | | | | | | | | (U) Index of Terminals—Auxiliary Acquisition Interconnecting Group | | | | | | | | | | | |
|--|----------|----------|----------|----------|----------|----------|----------|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Terminal | Location | Terminal | Location | Terminal | Location | Terminal | Location | Terminal | Location | Terminal | Location | Terminal | Location | Terminal | Location | Terminal | Location | Terminal | Location |
| 1 | D4 | 55 | D3 | 109 | NC | 163 | D3 | 1 | C10 | 55 | NC | 109 | C13 | 163 | NC | 217 | B16 | 271 | NC |
| 2 | A4 | 56 | NC | 110 | NC | 164 | NC | 2 | C10 | 56 | NC | 110 | C13 | 164 | B11 | 218 | C16 | 272 | NC |
| 3 | A4 | 57 | NC | 111 | A2 | 165 | NC | 3 | C10 | 57 | NC | 111 | B13 | 165 | C10 | 219 | B7 | 273 | NC |
| 4 | B1 | 58 | NC | 112 | A2 | 166 | NC | 4 | C10 | 58 | NC | 112 | B13 | 166 | B11 | 220 | B7 | 274 | NC |
| 5 | C1 | 59 | NC | 113 | A2 | 167 | NC | 5 | C10 | 59 | NC | 113 | B13 | 167 | B11 | 221 | C10 | 275 | NC |
| 6 | NC | 60 | NC | 114 | A2 | 168 | NC | 6 | C10 | 60 | NC | 114 | B13 | 168 | B13 | 222 | C11 | 276 | NC |
| 7 | NC | 61 | A5 | 115 | A2 | 169 | NC | 7 | NC | 61 | NC | 115 | NC | 169 | B11 | 223 | C10 | 277 | NC |
| 8 | NC | 62 | A5 | 116 | A2 | 170 | A10 | 8 | NC | 62 | NC | 116 | NC | 170 | B13 | 224 | NC | 278 | NC |
| 9 | NC | 63 | A5 | 117 | A2 | 171 | NC | 9 | NC | 63 | NC | 117 | NC | 171 | C14 | 225 | NC | 279 | NC |
| 10 | NC | 64 | A5 | 118 | A2 | 172 | NC | 10 | NC | 64 | NC | 118 | NC | 172 | C14 | 226 | NC | 280 | NC |
| 11 | D2 | 65 | C1 | 119 | A2 | 173 | NC | 11 | NC | 65 | NC | 119 | NC | 173 | C14 | 227 | B7 | 281 | Note 7 |
| 12 | D2 | 66 | NC | 120 | A2 | 174 | NC | 12 | NC | 66 | NC | 120 | B10 | 174 | NC | 228 | B7 | 282 | NC |
| 13 | D2 | 67 | A6 | 121 | B1 | 175 | NC | 13 | NC | 67 | NC | 121 | C12 | 175 | B8 | 229 | B7 | 283 | Note 7 |
| 14 | D2 | 68 | A5 | 122 | B1 | 176 | NC | 14 | NC | 68 | NC | 122 | C12 | 176 | C15 | 230 | C15 | 284 | NC |
| 15 | D2 | 69 | A6 | 123 | B1 | 177 | NC | 15 | NC | 69 | NC | 123 | C11 | 177 | B10 | 231 | B12 | 285 | D21 |
| 16 | D2 | 70 | A6 | 124 | NC | 178 | NC | 16 | NC | 70 | NC | 124 | C11 | 178 | B10 | 232 | B12 | 286 | NC |
| 17 | D2 | 71 | D14 | 125 | B1 | 179 | NC | 17 | NC | 71 | NC | 125 | C11 | 179 | B10 | 233 | NC | 287 | Note 7 |
| 18 | D2 | 72 | D14 | 126 | B1 | 180 | NC | 18 | NC | 72 | NC | 126 | B9 | 180 | C15 | 234 | NC | 288 | NC |
| 19 | D2 | 73 | NC | 127 | B1 | 181 | D14 | 19 | NC | 73 | NC | 127 | B9 | 181 | C12 | 235 | NC | 289 | Note 7 |
| 20 | C1 | 74 | NC | 128 | NC | 182 | A11 | 20 | NC | 74 | NC | 128 | B9 | 182 | C12 | 236 | B3 | 290 | Note 7 |
| 21 | D3 | 75 | NC | 129 | NC | 183 | A11 | 21 | NC | 75 | NC | 129 | B9 | 183 | C12 | 237 | B8 | 291 | Note 7 |
| 22 | D3 | 76 | NC | 130 | NC | 184 | A11 | 22 | NC | 76 | NC | 130 | B9 | 184 | C14 | 238 | B8 | 292 | Note 7 |
| 23 | D3 | 77 | NC | 131 | A1 | 185 | A11 | 23 | NC | 77 | NC | 131 | B9 | 185 | B12 | 239 | C15 | 293 | NC |
| 24 | D3 | 78 | NC | 132 | A1 | 186 | A11 | 24 | NC | 78 | NC | 132 | B9 | 186 | C12 | 240 | NC | 294 | D20 |
| 25 | D3 | 79 | NC | 133 | A1 | 187 | A11 | 25 | NC | 79 | NC | 133 | B9 | 187 | C12 | 241 | C11 | 295 | D20 |
| 26 | NC | 80 | NC | 134 | D14 | 188 | A11 | 26 | NC | 80 | NC | 134 | NC | 188 | C14 | 242 | C15 | 296 | NC |
| 27 | NC | 81 | A3 | 135 | B1 | 189 | A12 | 27 | NC | 81 | B13 | 135 | NC | 189 | C14 | 243 | C15 | 297 | D21 |
| 28 | NC | 82 | A3 | 136 | B1 | 190 | A12 | 28 | NC | 82 | C13 | 136 | NC | 190 | C14 | 244 | C16 | 298 | NC |
| 29 | NC | 83 | A3 | 137 | B1 | 191 | A8 | 29 | NC | 83 | NC | 137 | B11 | 191 | B15 | 245 | C16 | 299 | D20 |
| 30 | NC | 84 | A3 | 138 | NC | 192 | A8 | 30 | NC | 84 | NC | 138 | B11 | 192 | B15 | 246 | C16 | 300 | D19 |
| 31 | NC | 85 | A3 | 139 | NC | 193 | A8 | 31 | NC | 85 | NC | 139 | B12 | 193 | B15 | 247 | C16 | 301 | D18 |
| 32 | NC | 86 | A3 | 140 | NC | 194 | A11 | 32 | NC | 86 | C15 | 140 | B14 | 194 | B15 | 248 | B10 | 302 | D18 |
| 33 | NC | 87 | A3 | 141 | A3 | 195 | D15 | 33 | NC | 87 | B13 | 141 | C13 | 195 | B15 | 249 | B10 | 303 | NC |
| 34 | NC | 88 | A3 | 142 | A3 | 196 | D15 | 34 | NC | 88 | B13 | 142 | C12 | 196 | NC | 250 | B10 | 304 | C18 |
| 35 | NC | 89 | A3 | 143 | A3 | 197 | D13 | 35 | NC | 89 | C13 | 143 | C12 | 197 | NC | 251 | B10 | 305 | NC |
| 36 | NC | 90 | A3 | 144 | A3 | 198 | D15 | 36 | NC | 90 | C13 | 144 | NC | 198 | B15 | 252 | B7 | 306 | NC |
| 37 | NC | 91 | D8 | 145 | A4 | 199 | A8 | 37 | NC | 91 | B8 | 145 | C11 | 199 | B15 | 253 | B7 | 307 | NC |
| 38 | NC | 92 | D8 | 146 | A4 | 200 | D15 | 38 | NC | 92 | B8 | 146 | C14 | 200 | NC | 254 | B7 | 308 | NC |
| 39 | NC | 93 | D8 | 147 | A4 | 201 | D15 | 39 | NC | 93 | B8 | 147 | C13 | 201 | B8 | 255 | B7 | 309 | C17 |
| 40 | NC | 94 | D8 | 148 | A4 | 202 | D15 | 40 | NC | 94 | B9 | 148 | C14 | 202 | B8 | 256 | C11 | 310 | C17 |
| 41 | NC | 95 | D8 | 149 | NC | 203 | D14 | 41 | NC | 95 | B9 | 149 | C12 | 203 | B8 | 257 | C11 | 311 | C18 |
| 42 | NC | 96 | D8 | 150 | NC | 204 | D15 | 42 | NC | 96 | B9 | 150 | C12 | 204 | NC | 258 | C11 | 312 | C18 |
| 43 | NC | 97 | D8 | 151 | D4 | 205 | NC | 43 | NC | 97 | B9 | 151 | B14 | 205 | NC | 259 | C11 | 313 | C18 |
| 44 | C1 | 98 | D8 | 152 | D4 | 206 | NC | 44 | NC | 98 | B9 | 152 | B14 | 206 | NC | 260 | C11 | 314 | C18 |
| 45 | NC | 99 | D8 | 153 | D5 | 207 | NC | 45 | NC | 99 | B9 | 153 | B14 | 207 | B14 | 261 | C11 | 315 | D18 |
| 46 | C1 | 100 | D9 | 154 | D5 | 208 | D14 | 46 | NC | 100 | B10 | 154 | B14 | 208 | B15 | 262 | C11 | 316 | D18 |
| 47 | D2 | 101 | D9 | 155 | D5 | 209 | D14 | 47 | NC | 101 | C13 | 155 | B14 | 209 | B15 | 263 | C11 | 317 | C17 |
| 48 | D5 | 102 | D9 | 156 | D5 | 210 | D14 | 48 | NC | 102 | C13 | 156 | B14 | 210 | B16 | 264 | C11 | 318 | C17 |
| 49 | D6 | 103 | NC | 157 | D6 | | | 49 | NC | 103 | C13 | 157 | B14 | 211 | NC | 265 | NC | 319 | C17 |
| 50 | D6 | 104 | NC | 158 | D6 | | | 50 | NC | 104 | C13 | 158 | B14 | 212 | NC | 266 | NC | 320 | C17 |
| 51 | D3 | 105 | NC | 159 | NC | | | 51 | NC | 105 | C13 | 159 | B14 | 213 | NC | 267 | NC | | |
| 52 | D3 | 106 | NC | 160 | NC | | | 52 | NC | 106 | C14 | 160 | B15 | 214 | NC | 268 | NC | | |
| 53 | D3 | 107 | NC | 161 | D3 | | | 53 | NC | 107 | C14 | 161 | B10 | 215 | NC | 269 | NC | | |
| 54 | D3 | 108 | NC | 162 | D4 | | | 54 | NC | 108 | C14 | 162 | B10 | 216 | NC | 270 | NC | | |

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CONFIDENTIAL—Modified Handling
Authorized

C12

(U) Auxiliary Acquisition Control Interconnecting Group 9998063 and Auxiliary
Acquisition Control Interconnecting Box 9996460—Apparatus List

| Ref desig | Value | Mfr's rating | | | Type, part, or drawing no. | Remarks |
|---|-------|--------------|-------|-------|----------------------------|------------------|
| | | Tol \pm % | Watts | Volts | | |
| Items listed below are part of GS-67553 | | | | | | |
| A1 | | | | | 9990729 | GS-64261 |
| A2 | | | | | 9984404 | GS-65849 |
| A3 | | | | | 9136426 | GS-57296 |
| A4 | | | | | 9996155 | GS-66095 |
| A5 | | | | | 9989496 | GS-67480 |
| A6 | | | | | 9156529 | GS-64186 |
| A7 | | | | | 9986580 | Filter (52 mc) |
| A8 | | | | | 9986579 | Filter (48 mc) |
| A9 | | | | | 9986740 | Attenuator (J26) |
| A10 | | | | | 9986584 | IF coupler |
| A11 | | | | | 9156529 | GS-64186 |
| A12 | | | | | 9990650 | GS-64183 |
| A13 | | | | | 9990588 | GS-64182 |
| A14 | | | | | 9990577 | GS-64181 |
| A15 | | | | | 9986612 | K1 ADJ |
| A16 | | | | | 9986578 | Filter (60 mc) |
| A17 | | | | | 9990700 | GS-64198 |
| A18 | | | | | 9990687 | GS-64196 |
| A19 | | | | | 9993003 | GS-66070 |
| A20 | | | | | 9990700 | GS-64198 |
| DS1 thru DS4 | | | | | 7605718 | |
| DS5 | | | | | 9005455 | |
| DS6 | | | | | 9005457 | |
| F1 thru F4 | | | | | MS90078-2 | |
| J2 thru J6 | | | | | 9150422 | Body |
| J10 thru J16 | | | | | 8531068 | |
| J17 thru J20 | | | | | 9150422 | |
| J21 thru J25 | | | | | MS35731-910A | |
| P1 thru P31 | | | | | MS35168-88D | |
| P32, P33 | | | | | 9150422 | |
| S1 thru S4 | | | | | 7602749 | |
| S5 | | | | | MS35059-23 | |
| T1, T2 | | | | | 7605345 | |
| TB | | | | | 9139028-1 | |
| Items listed below are part of GS-67478 | | | | | | |
| J1 thru J10 | | | | | MS35181-910A | |
| J25 | | | | | MS35181-910A | |
| J26 thru J28 | | | | | 7632527 | |
| J30 | | | | | 9144371 | |
| J31 | | | | | 9138667 | |
| J32 | | | | | 8016481 | |
| P51 thru P53 | | | | | MS35168-1 | |
| T2 thru T4 | | | | | 8017765 | |
| TB | | | | | 7634159 | |

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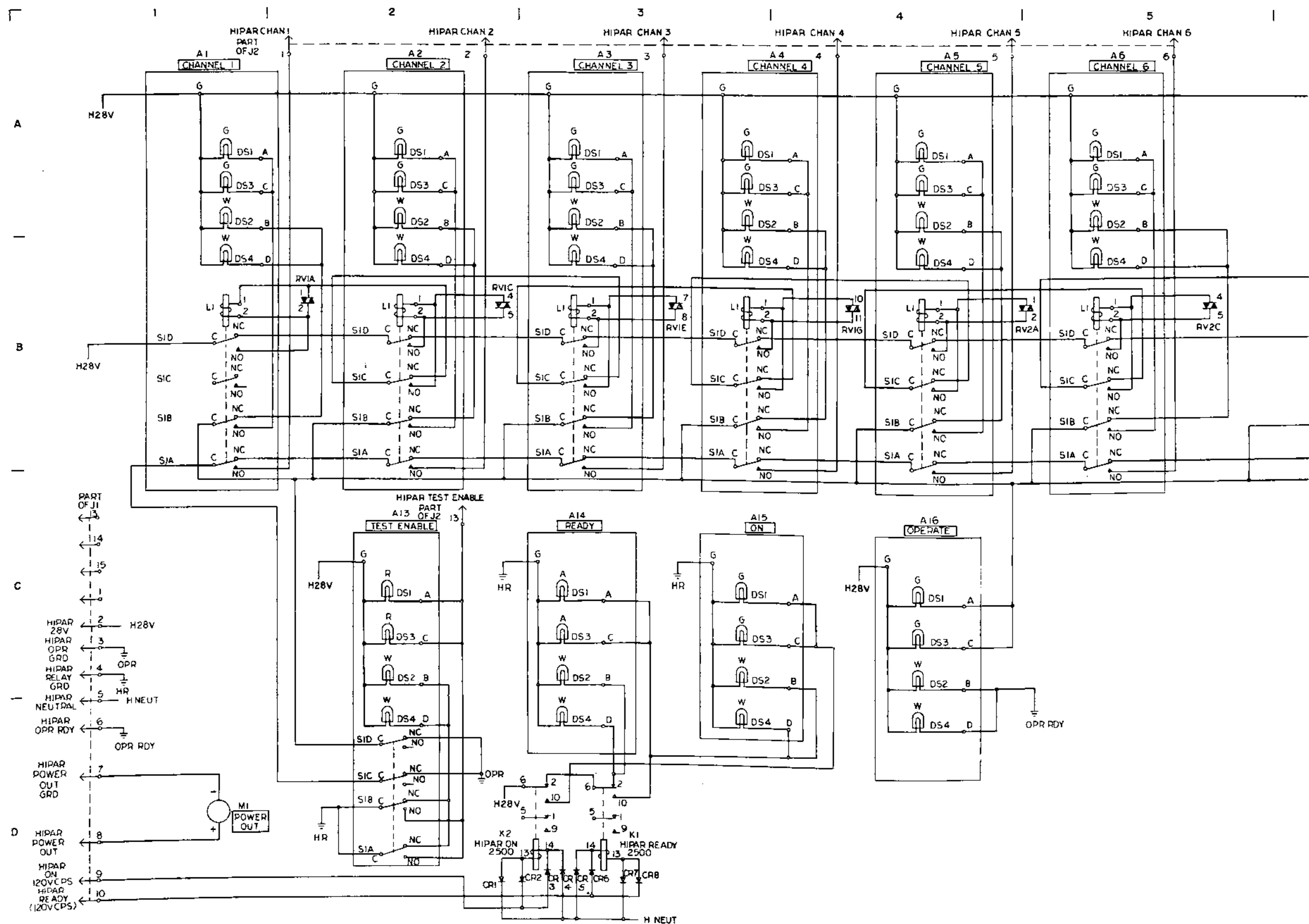


Figure 95 (U). HIPAR auxiliary control-indicator 9996155—schematic diagram (sheet 1 of 2) (U).

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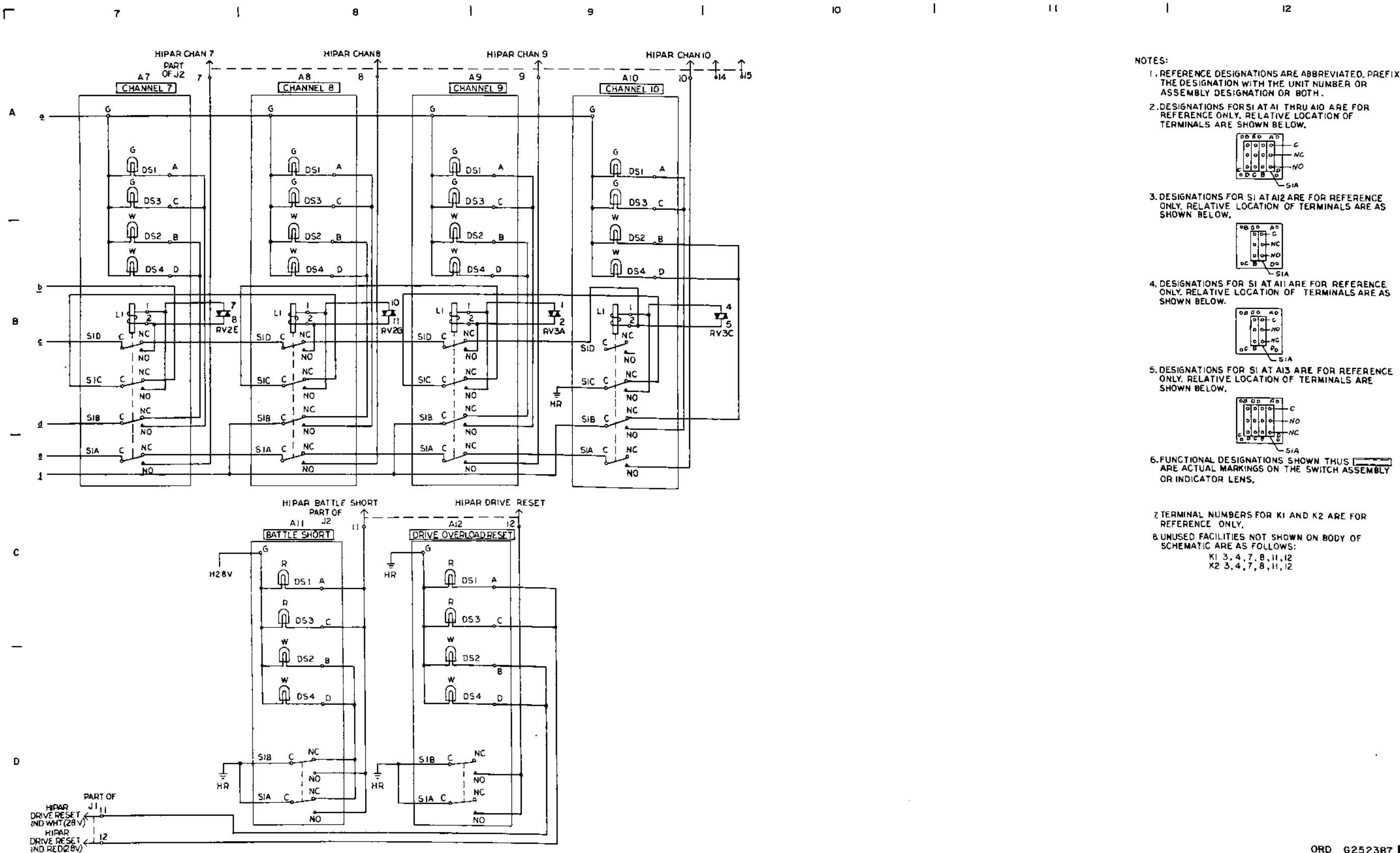
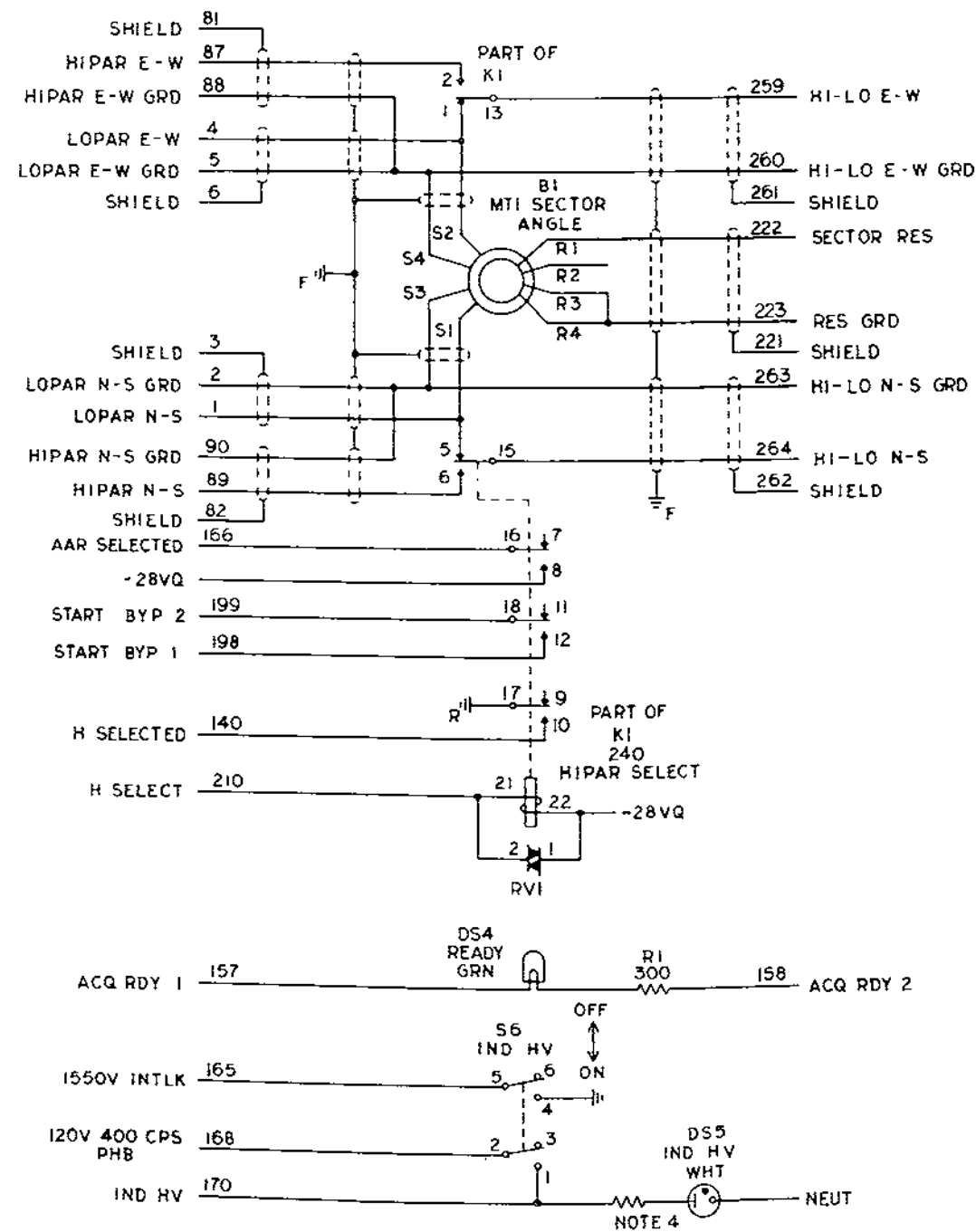
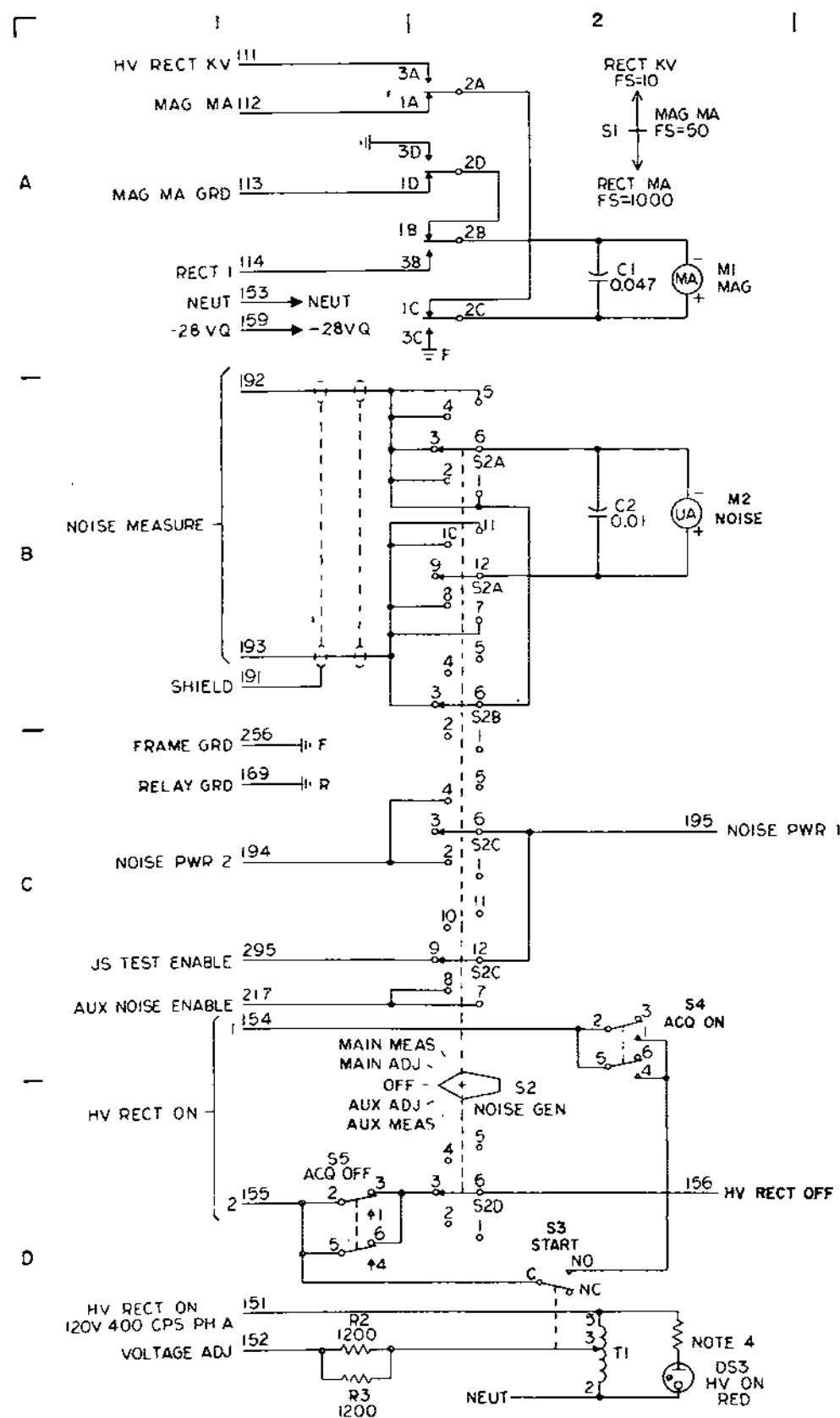


Figure 95 (U). Continued (sheet 2 of 2).

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(U) HIPAR Auxiliary Control-Indicator 9986155—Apparatus List

| Ref desig | Value | Mfr's rating | | | Type, part, or drawing no. | Remarks |
|--------------|-------|--------------|-------|-------|----------------------------|---------|
| | | Tol \pm % | Watts | Volts | | |
| A1 | 2500 | | | | 9986902 | |
| A2 | | | | | 9986902-20 | |
| A3 | | | | | 9986902-21 | |
| A4 | | | | | 9986902-22 | |
| A5 | | | | | 9986902-23 | |
| A6 | | | | | 9986902-24 | |
| A7 | | | | | 9986902-25 | |
| A8 | | | | | 9986902-26 | |
| A9 | | | | | 9986902-27 | |
| A10 | | | | | 9986902-28 | |
| A11 | | | | | 9986901-18 | |
| A12 | | | | | 9986901-20 | |
| A13 | | | | | 9986901-425 | |
| A14 | | | | | 9986903-2 | |
| A15 | | | | | 9986903-3 | |
| A16 | | | | | 9986903 | |
| J1, J2 | | | | | 9150421 | |
| CR1 thru CR8 | | | | | 1N3191 | |
| K1, K2 | | | | | 9986949 | |
| M1 | | | | | 9976301 | |
| RV1 thru RV3 | | | | | 7599075 | |



- NOTES:**

1. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATIONS WITH THE UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH.
2. UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES IN MICROFARADS.
3. UNUSED FACILITIES NOT SHOWN IN BODY OF SCHEMATIC ARE AS FOLLOWS:
RVI-3,4
KI-3,4,14
S2B-7,8,9,10,11,12
S2D-7,8,9,10,11,12
4. RESISTORS ASSOCIATED WITH DS3 AND DS5 ARE INTEGRAL PARTS OF THE LAMPS.

58
61
62

84.2

86

112.2

12.18

ORD G252280

1.50

■ Figure 96 (U). LOPAR auxiliary control-indicator 9989496—schematic diagram (U).

TECHNICAL MANUAL

No. 9-1430-257-20

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 7 October 1959

UNIT SCHEMATICS ACQUISITION RADAR SYSTEM (LESS HIPAR) (U)

| CHAPTER | Section | Paragraph | Page |
|---------|---|-----------|--------|
| 1. | INTRODUCTION | | |
| I. | General | | |
| | Scope | 1 | 11 |
| | Contents | 2 | 16 |
| | Forms, Records, and Reports | 2.1 | 16 |
| | Comments, Criticisms, and Corrections | 2.2 | 16 |
| II. | Diagrams | | |
| | General | 3 | 17 |
| | Description | 4 | 17 |
| | Explanation of ground symbols | 5 | 17 |
| III. | Voltage and resistance charts | | |
| | General | 6 | 20.5 |
| | Description | 7 | 20.5 |
| | Socket voltage measurements | 8 | 20.5 |
| | Socket resistance measurements | 9 | 20.5 |
| IV. | Apparatus lists | | |
| | General | 10 | 20.5 |
| | Description | 11 | 20.5 |
| V. | Waveforms, abbreviations, and relay types | | |
| | Waveforms | 12 | 20.5 |
| | Abbreviations | 13 | 20.5 |
| | Relay types | 14 | 20.6 |
| VI. | Schematic effectivity | 15 | 20.10 |
| 2. | NIKE-HERCULES SCHEMATIC DIAGRAMS | | |
| I. | Trailer mounted director station | Figure | Page |
| | Trailer mounted director station 9985678—schematic diagram (17 sheets) and associated apparatus list | 2 | 22 |
| | Trailer mounted director station 9985689—schematic diagram (18 sheets) and associated apparatus list | 2.1 | 40 |
| | Trailer mounted director station 9988601—schematic diagram (17 sheets) and associated apparatus list | 2.2 | 40.36 |
| | Trailer mounted director station 9988606—schematic diagram (18 sheets) and associated apparatus list | 2.3 | 40.70 |
| II. | Battery control console | | |
| | Battery control console 8173147—schematic diagram (8 sheets) and associated apparatus list | 3 | 40.106 |
| | Battery control console 8173147—schematic diagram (with auxiliary acquisition radar modification) (9 sheets) and associated apparatus list | 3.1 | 48 |
| | Battery control console 8173147 (with antijam display capability)—schematic diagram (8 sheets) and associated apparatus list | 3.2 | 48.18 |
| | Battery control console 8173147 (with auxiliary acquisition radar modification and antijam display capability)—schematic diagram (9 sheets) and associated apparatus list | 3.3 | 48.34 |
| | PPI 9989036—schematic diagram (2 sheets) and associated apparatus list | 4 | 48.52 |
| | Modulation eliminator 8517883 or 9007951—schematic diagram and associated apparatus list | 5 | 51 |
| | Sweep generator 8518032—schematic diagram and associated apparatus list | 6 | 52 |
| | Sweep generator 8518032—voltage and resistance chart | | 54 |

*This manual supersedes portions of TM 9-5090-3-1, 10 May 1957, including C1, 16 May 1958, and C2, 25 August 1958, as pertains to this manual.

**These changes supersede TB 9-1430-257-20/1, 8 January 1960; TB 9-1430-257-20/2, 5 February 1960; TB 9-1430-257-20/3, and TB 9-1430-257-20/4, 3 March 1960.

| Section | Figure | Page |
|--|--------|--------|
| II. Battery control console—Continued | | |
| PPI DC amplifier 9005503—schematic diagram and associated apparatus list | 7 | 55 |
| PPI DC amplifier 9005503—voltage and resistance chart | | 57 |
| PPI video amplifier 9142869—schematic diagram and associated apparatus list | 8 | 58 |
| PPI video amplifier 9142869—voltage and resistance chart | | 61 |
| PPI video amplifier 9985598—schematic diagram and associated apparatus list | 8.1 | 62 |
| PPI video amplifier 9985598—voltage and resistance chart | | 62.3 |
| PPI marker generator 9007680—schematic diagram and associated apparatus list | 9 | 62.4 |
| PPI marker generator 9007680—voltage and resistance chart (2 sheets) | | 66 |
| Precision indicator 9007681—schematic diagram and associated apparatus list | 10 | 68 |
| Precision indicator 9985665—schematic diagram (3 sheets) and associated apparatus list | 10.1 | 68.2 |
| Range sweep generator 7617885 or 8607326—schematic diagram and associated apparatus list | 11 | 69 |
| Range sweep generator 7617885 or 8607326—voltage and resistance chart | | 71 |
| Azimuth sweep generator mixer stage 7620604—schematic diagram and associated apparatus list | 12 | 72 |
| Azimuth sweep generator mixer stage 7620604—voltage and resistance chart | | 73 |
| Mark generator 9007682—schematic diagram and associated apparatus list | 13 | 74 |
| Mark generator 9007682—voltage and resistance chart | | 76 |
| Precision video amplifier 7620605—schematic diagram and associated apparatus list | 14 | 77 |
| Precision video amplifier 7620605—voltage and resistance chart | | 79 |
| Battery signal panel-indicator 10184906—schematic diagram (4 sheets) and associated apparatus list | 15 | 80 |
| Tactical control-indicator 9989030—schematic diagram and associated apparatus list | 16 | 84 |
| PPI HV power supply 9142872—schematic diagram and associated apparatus list | 17 | 84.2 |
| Target designate control-indicator 9993474—schematic diagram (2 sheets) and associated apparatus list | 18 | 86 |
| Low-power servo amplifier 7614253—schematic diagram and associated apparatus list | 19 | 89 |
| Low-power servo amplifier 7614253—voltage and resistance chart | | 91 |
| Acquisition range generator 9007684—schematic diagram and associated apparatus list | 20 | 92 |
| Acquisition range generator 9007684—voltage and resistance chart | | 95 |
| Acquisition control-indicator 9993484—schematic diagram and associated apparatus list | 21 | 96 |
| Acquisition control-indicator 9985604—schematic diagram (2 sheets) and associated apparatus list | 21.1 | 98.2 |
| Acquisition control-indicator 9988650—schematic diagram (2 sheets) and associated apparatus list | 21.2 | 98.6 |
| STC 8512082—schematic diagram and associated apparatus list | 22 | 99 |
| STC 8512082—voltage and resistance chart | | 101 |
| —28v power supply 8512751 or 9986424—schematic diagram and associated apparatus list | 23 | 102 |
| Gong control relay assembly 8012372—schematic diagram and associated apparatus list | 24 | 103 |
| Auxiliary acquisition relay assembly 9985525—schematic diagram (2 sheets) and associated apparatus list | 24.1 | 104 |
| III. Director station group | | |
| Director station group 8513626—schematic diagram (7 sheets) and associated apparatus list | 25 | 104.4 |
| Director station group 8513626 (with auxiliary acquisition radar modification)—schematic diagram (7 sheets) and associated apparatus list | 25.1 | 112.2 |
| Director station group 8513626 (with antijam display capability)—schematic diagram (8 sheets) and associated apparatus list | 25.2 | 112.18 |
| Director station group 8513626 (with auxiliary acquisition radar modification and antijam display capability)—schematic diagram (8 sheets) and associated apparatus list | 25.3 | 112.34 |
| Cathode follower amplifier 9998354—schematic diagram and associated apparatus list | 25.4 | 112.50 |